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NOVEMBER 5TH, 1872.

DR. R. S. CHARNOCK, *Vice-President, in the Chair.*

THE Minutes of the previous Meeting were read and confirmed.

The following new members were announced: JOSEPH BONOMI, Esq., Soane Museum; HENRY JAMES NELSON, Esq., M.A., Combalonum, Madras; CLAUDE LONG, Esq., M.A. Oxon., 13, Marine Parade, Brighton; JAMES FISCHER, Esq., F.L.S., Salem, Madras Presidency; W. L. DISTANT, Esq., 1, Caledonian Terrace, Queen's Road, Hatcham.

The following presents were announced, and the thanks of the meeting were voted to the respective donors:—

FOR THE LIBRARY.

- From the AUTHOR.—Pre-historic Phases, by Hodder M. Westropp.  
From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris, tome 6, Nos. 2 and 3, 1872.  
From the AUTHOR.—Ancient Stone Implements of Great Britain, by John Evans, F.R.S.  
From the AUTHOR.—Contribution à une Histoire Générale et Encyclopédique des Sciences, by Théodore Wechuiakof.  
From the SOCIETY.—Proceedings of the Literary and Philosophical Society of Liverpool, 1870-1.  
From the AUTHOR.—Etude sur les Races Indigènes de l'Australie, by Dr. Paul Topinard.  
From the TRUSTEES.—Annual Report of the Trustees of the Museum of Comparative Zoology, at Harvard College, Cambridge, U.S., 1871.  
From the EDITOR.—La Revue Scientifique, Nos. 1 to 15, 1872.  
From the SOCIETY.—Proceedings of the Royal Society, vol. xx, Nos. 135, 136, and 137, 1872.

- From the EDITOR.—The Food Journal for July, August, September, October, and November.
- From the AUTHOR.—The Affinity between the Hebrew Language and the Celtic, by Dr. Thomas Stratton, R.N.
- From the SOCIETY.—Proceedings of the Royal Geographical Society, vol. xvi, Nos. 2 and 3. Journal, ditto, 1871.
- From the EDITOR.—The Mining Magazine and Review for July, 1872.
- From the SOCIETY.—The Journal of the Royal Historical and Archaeological Association of Ireland, No. 10, 1872.
- From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Petersburg, t. xvii, Nos. 1, 2, and 3.
- From the SOCIETY.—Mémoires de la Société des Naturalistes de la Nouvelle Russie, vol. i, No. 3.
- From the INSTITUTE.—The Canadian Journal, vol. xiii, No. 4.
- From the LIBRARY.—Report of the London Library, 1871-2.
- From JAMES BURNS, Esq.—Human Nature for August, September, October, and November.
- From the AUTHOR.—The New Principia, Sec. edit., by Com. R. J. Morrison, R.N.
- From the EDITOR.—Nature (to date).
- From the SOCIETY.—Proceedings of Philosophical Society of Glasgow, 1871-2.
- From the INSTITUTE.—Smithsonian Report, 1870.
- From the SOCIETY.—Journal of the Asiatic Society of Bengal, part i, No. 3, 1871. Proceedings ditto, Nos. 2, 3, 4, and 5.
- From the SOCIETY.—Mémoires de la Société Royale des Antiquaires du Nord. 1869-70-71.
- From the INSTITUTION.—Journal of the Royal United Service Institution, vol. xv, No. 67.
- From the ASSOCIATION.—Journal of the East India Association, vol. vi, No. 1.
- From the EDITOR.—Journal of Psychological Medicine, July 1872.
- From the AUTHOR.—Man contemplated Physically, Morally, Intellectually, and Spiritually, part iii, by the late J. W. Jackson.
- From the AUTHOR.—Recherches sur l'Ethnologie de la Belgique, 1872, Leon Vanderkindere.
- From the ACADEMY.—Jahrbuch der K. K. Geologischen Reichsanstalt, 22 Band, Nos. 1 and 2; Verhandlungen ditto, Nos. 1 to 10, 1872.
- From the SOCIETY.—Journal of the Royal Asiatic Society of London, vol. vi, part 1.
- From the GOVERNMENT.—Statistics of New Zealand for 1870.
- From the SOCIETY.—Tijdschrift de la Société des Arts et des Sciences à Batavia, vol. xviii, Nos. 3 and 4; xx, No. 3; Notulen ditto, vol. ix, 1871, and catalogues.
- From the AUTHOR.—Nonnas Cranioscopicas, 1872, by Philip Phœbus.
- From the ACADEMY.—Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien. Philos-Histor. Classe—68 Band,



- Heft 2, 3, and 4; 69 Band, Heft 1-3. Math.-Naturw. 1871, 1 Abtheil, Heft 6-7, 8, 9-10; 11 Abtheil, 11, 6-7, 8, 9-10.
- From the AUTHOR.—Über den Bau der Zigeunerschädel, by Isidor Kopernicki.
- From Prof. ECKER.—Archiv für Anthropologie, Fünfter Band, 1872.
- From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscow, No. 1, 1872.
- From the EDITOR.—Medizinische Jahrbücher der k. k. Gesellschaft der Ärzte in Wien, 1872, Nos. 2 and 3.
- From the SOCIETY.—Proceedings of the Geological and Polytechnic Society of the West Riding of Yorkshire, 1871-2.
- From the SOCIETY.—Schriften der Königlischen Physikalisch-ökonomischen Gesellschaft zu Königsberg, vol. xii, Nos. 1 and 2, vol. xiii, No. 1, 1871-2.
- From the SOCIETY.—Mémoires Couronnés par la Société d'Ethnographie, vol. i, parts 1 and 3.
- From the GOVERNOR.—Report upon the Population of Barbados, 1851-71, by Governor Rawson, C.B.
- From the BOARD.—The Third Annual Report of the State Board of Health of Massachusetts, 1872.
- From the AUTHOR.—The Increase of Human Life, and Immigration into the United States, by Dr. E. Jarvis.
- From DR. EDWARD JARVIS.—Handbook for Immigrants to the United States, with map.
- From the Author.—Hints and Facts on the Origin, Condition, and Destiny of Man, Sec. Edit. by Rev. Pius Melia, D.D.
- From the AUTHOR.—The Expression of the Emotions in Man and Animals, by Charles Darwin, M.A.
- From the AUTHOR.—Oriental and Linguistic Studies, by Wm. Dwight Whitney.

## FOR THE MUSEUM.

- From WALTER BESANT, Esq., M.A.—Six Photographs of the Hamath Stones.

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The following paper was read by the author :

MAN and the APE. By C. STANILAND WAKE, M.A.I.

THE primary object of the present paper is to ascertain whether the conclusion arrived at by Mr. Darwin and other writers as to the origin of man—that he has sprung from the ape by simple descent—can be depended on, and if not, what is the nature of man's relationship to the animal kingdom.

Without further preface, I shall proceed to consider as briefly as possible the main arguments adduced by Mr. Darwin in support of this conclusion.\* Those which are derived from the consideration of physical data appear to me to be of compara-

\* "The Descent of Man," vol. i, p. 10 seq.

tively small importance, since they may be admitted without seriously affecting the question at issue. They are almost all connected with the fact that man is "constructed on the same general type or model with other mammals." Thus it is with the brain, every chief fissure and fold of which is declared to be developed in the brain of the orang equally with that of man. Their constitutional habit, however, appears also to be the same. Thus man and monkeys are liable to many of the same non-contagious diseases; medicines produce the same effect on both; and most mammals exhibit the mysterious law of periodicity in various diseases. These are interesting facts, but the most important for the argument of the ape-descent of man, are those which show the existence in the human body of certain rudimentary organs and structures which are fully developed with some of the lower animals. It is possible, however, to explain this phenomenon without having recourse to the hypothesis of a simple ape-descent; even if it be admitted with M. Broca, that in the parallel between man and the anthropoids, the comparison of organs shows only some slight differences.\* This may be granted even as to the brain, and that "the immense superiority of man's intelligence depends, not on the anatomical structure of his brain, but on its volume and power."† But then, if such be the case, it is all the more difficult to account for the vast difference which, says Broca, a comparison of function reveals, and which led M. Gratiolet to exclaim that, although man is indeed by his structure a monkey, yet by his intelligence he is a God.‡

While admitting that physiological considerations reveal a much wider interval between man and the anthropoid apes than anatomical data require, M. Broca would hardly allow that the former exhibits anything peculiar in his mental action. So also, Mr. Darwin says that man and the higher mammals "have some few instincts in common. All have the same senses, intuitions, and sensations—similar passions, affections, and emotions, even the more complex ones; they feel wonder and curiosity; they possess the same faculties of imitation, attention, memory, imagination, and reason, though in very different degrees."§ The faculty of articulate speech, moreover, is said not in itself to offer "any insuperable objection to the belief that man has been developed from some lower form;" while the taste for the "beautiful" is shown not to be peculiar to the human mind.|| The moral sense is supposed by Mr. Darwin to be the most distinctive characteristic of man; but

\* "L'Ordre des Primates," p. 173. 1870.

† *Ibid.*, p. 168.

§ *Op. cit.*, i, 48.

‡ *Ibid.*, p. 173.

|| *Ibid.*, p. 63.

even this is asserted to have been developed out of the social instincts which man and many of the lower animals have in common.\* Finally, self-consciousness, abstraction, etc., even if peculiar to man, are declared to be "the incidental results of other highly-advanced intellectual faculties";† and these again are mainly due to the continued use of a highly developed language, which originated in "the imitation and modification, aided by signs and gestures, of various natural sounds, the voices of other animals, and man's own instinctive cries."‡

If, however, all this be true, how are we to account for the wonderful intellectual superiority of man? Haeckel gives an explanation which, although ingenious, is far from satisfactory. He says that it is owing to the fact that "man combines in himself several prominent peculiarities, which only occur separately among other animals." The most important of these are the superior structure of the larynx, the degree of brain or soul development, and that of the extremities, the upright walk, and lastly speech. But, says Haeckel, "all these prerogatives belong singly to other animals: birds with highly organized larynx and tongue, such as the parrot, etc., can learn to utter articulate sounds as perfectly as man himself. The soul's activity exists among many of the higher animals, particularly with the dog, the elephant, and the horse, in a higher degree of cultivation than with man when most degraded. The hand, as a mechanical instrument, is as highly developed among the anthropoid apes as with the lowest men. Finally, man shares his upright walk with the penguin and other animals, while capacity for locomotion is more fully and more perfectly developed among many animals than with man." Haeckel concludes, therefore, that it is "solely the fortunate combination of a higher organization of several very important organs and functions, which raises most men, but not all, above the animals."§ This explanation, however, appears rather to increase the difficulty than to remove it. Some of Haeckel's statements might probably be challenged with success; but even admitting their truth, what cause can be given of the marvellous combination in man, of qualities possessed separately by animals, the highest in the class to which they belong?

Mr. Darwin justly remarks, that "the belief that there exists in man some close relation between the size of the brain and the development of the intellectual faculties, is supported by the comparison of the skulls of savage and civilized races of ancient and modern peoples, and by the analogy of the whole vertebrate

\* *Ibid.*, p. 70 seq.

† *Ibid.*, p. 105.

‡ *Ibid.*, p. 56.

§ *Generelle Morphologie der Organismen*, vol. ii, p. 430. 1866.

series."\* There must, indeed, be a certain agreement between the brain and its intellectual products, and hence the large size of the human brain requires that the mental phenomena of man should be of a vastly superior nature to those presented by the lower animals. Whether, according to the developmental view of the correspondence between human and brute mental faculties, the lower races of man, as compared with animals, really exhibit an intellectual superiority commensurate with the largeness of their brains, may be questioned. Mr. Wallace, indeed, declares that they do not, and he goes so far as to say that "a brain slightly larger than that of the gorilla would, according to the evidence before us, fully have sufficed for the limited mental development of the savage."† This opinion is correct, on the assumption that animal and human mental action is perfectly analogous, and Mr. Wallace would undoubtedly be right in asserting that the savage possesses a brain "quite disproportionate to his actual requirements," if by this phrase is meant his mere animal wants. But the savage is a man, and the size of brain required by him must be judged of, not by the degree of intellectual action he exhibits, but by its accompaniments—not by quantity, but by quality.

The source of man's superiority must be sought in an examination of his mental faculties, and yet the inquiry is vitiated at the very commencement, by the assumption that the mind of man differs from that of the animal only in the degree of its activity. I am prepared to admit that the higher mammalia, at least, have the power of reasoning, with all the faculties which are essential to its exercise. But this very fact makes it utterly incomprehensible how the result of human mental activity can be so superior, unless some further principle or faculty than those which the animal mind possesses operates in that of man. What this principle or faculty is, may be shown by reference to certain facts connected with language. Mr. Darwin ascribes the origin of human speech to imitation and modification of natural sounds and man's own instinctive utterances.‡ That the primitive elements of man's language were thus obtained is doubtless true. Something else, however, is required to explain the phenomena presented by the languages of uncultured peoples. Such, for instance, cannot have been the origin of certain ideas which are apparently common to the minds of all peoples however savage. It has been said that these peoples, although having names for every particular object, have no words to express a class of objects. This statement must be received with caution. But if absolutely true in the sense intended, it

\* *Op. cit.*, vol. 1, p. 145.

† "Natural Selection," p. 343. 1870.

‡ *Op. cit.*, vol. i, p. 56.

cannot be denied that nearly all primitive languages have words denoting colours, and these by their very nature, as expressive of attributes, are applicable to a series of objects.

Now there is not the slightest reason to believe that animals have any idea of qualities, as such. Even the taste for the beautiful, which Mr. Darwin tells us is not unknown to various animals—especially birds, has relation to the object which attracts by its colour, etc., and not to the colour itself. But it is just this perception of the qualities of objects which is at the foundation, and forms the starting point, of all human progress. The essential instrument of intellectual development, articulate language, was first prompted by such a perception, and it was in the recognition of the qualities of actions, by reflection on their consequences, that the moral sense was gradually evolved. It can hardly be that a power which has had so wonderful an effect, and one which is so different from anything met with among the lower animals can be referred to any of the ordinary faculties which these possess. If not, we must ascribe it to a new faculty altogether, a kind of spiritual insight, which can be explained only as resulting from the addition of a principle of activity superior to that which is the seat of the animal life. If we were to trace the beginning of every single branch of human culture, it would be found to have originated in the exercise of such a faculty of reflection as that here described. The elements of knowledge man possesses in common with the animals around him; but these have not built up any superstructure, because they have no spiritual insight such as will enable them to analyse those elements, and thus to fit them for recombination into that wonderful series of forms which they have taken in the human mind.

It is hardly necessary to discuss here the nature of the principle which thus shows its energy in the mind of man. Whether it is the cause or the effect of the refined organisation exhibited by the human body need not now be considered. If the latter, however, it may be objected that—assuming the human bodily organism to have been derived by descent from a lower animal form, according to the principles of natural selection—the intellectual faculty peculiar to man must have had analogous origin. To this it might be answered that man's special faculty could not have been derived from an animal organism which does not itself possess it; but it is advisable rather to test that conclusion by a consideration of the physical data, and to see how far the argument for natural descent can be supported. According to this view, the tendency to the bipedal character was the first to become operative in the gradual development of man out of the ape. The erect form is supposed, however, to have been as-



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sumed that the arms and hands might have full play,\* and it is evident that the free use of these would not have been of any special advantage without an increased brain-activity to guide them. Probably the changes required in the physical structure would be concomitant, but if they had a starting point it would surely be in the brain rather than in the extremities.

The great development of the encephalon in man as compared with the monkey tribe would, in fact, require all the other supposed changes. Thus the greatly increased size and weight of the brain and its bony case, combined with the position of the foramen magnum at the base of the skull, would necessitate the erect position of the body, and this would supply the arms and upper part of the trunk with the required freedom of movement. These changes would be accompanied by the modification of the pelvis and lower limbs, while the increased sensitiveness of the skin, resulting from man's more refined nervous structure, will sufficiently account for its general nakedness,† without supposing, with Mr. Darwin, the influence of sexual selection.‡ It is therefore in reality only the large size of the human brain that has to be accounted for, and this is by no means easy on the principle of natural selection. No doubt, with the increased activity of the mental powers the brain would become more voluminous. But what was to determine that increased activity? It can only have been an improvement in the conditions of existence, to which man's supposed ape progenitors were subjected, for which no sufficient reason can be given. Moreover, those progenitors would be subjected to the inevitable struggle for existence—a struggle which, even with man in an uncivilised state, has a tendency to brutalise rather than to humanise. Under these conditions it would seem to be impossible for man to have raised himself to so great a superiority over his nearest allies as even the lowest savage exhibits. "His absolute erectness of posture, the completeness of his nudity, the harmonious perfection of his hands, the almost infinite capacities of his brain, constitute," says Mr. Wallace, "a series of correlated advances too great to be accounted for by the struggle for existence of an isolated group of apes in a limited area,"§ as Mr. Darwin's hypothesis supposes.

While firmly convinced, on the grounds already stated, that man cannot have been derived from the ape by descent with natural selection, I am by no means prepared to admit that he may not have been so derived under other conditions. Although man undoubtedly has a mental faculty of the utmost importance

\* Darwin, *op. cit.*, vol. i, p. 141.

† See Owen's "Anatomy of the Vertebrates," vol. iii, p. 186.

‡ *Op. cit.*, vol. ii, p. 376.

§ The "Academy," No. 20, p. 183. 1871.

which the animals do not possess, agreeing with his superiority of physical structure, there can be no question that, both physically and mentally, he is most intimately allied to the members of the animal kingdom. Before endeavouring to furnish a solution of the difficult question of the origin of man under these conditions, I would point out, what is so ably insisted on by M. Broca,\* that *transformism*, to use the continental term, is wholly distinct from "natural selection" or any other mode by which the transformation may be originated or effected. This is a most important consideration, and one which Mr. Darwin has incidentally referred to in his latest work.† That man is the final term in a process of evolution, the beginning of which we cannot yet trace, appears to me to be a firmly established truth. The descent of man from the ape under the influence of external conditions is, however, a totally different proposition, and one of which no actual proof has yet been furnished, the argument really amounting to this, that the correspondences between man and the higher mammals render it more likely that he has descended from the ape than that he has been specially created. This may be true, and yet those correspondences be owing to a very different cause from the one thus supposed for them.

Mr. Herbert Spencer affirms that "successive changes of conditions would produce divergent varieties or species" of the organisms subject to them, apart from the influence of "natural selection," which, in the absence of such successive changes of conditions, would effect "comparatively little."‡ It is to the latter especially Mr. Spencer traces the gradual evolution of nature, on the process of which he has thrown so much light. Thus, when treating elsewhere of that evolution, he says—"while we are not called on to suppose that there exists in organisms any primordial impulse which makes them continually unfold into more heterogeneous forms; we see that a liability to be unfolded arises from the actions and reactions between organisms and their fluctuating environments. And we see that the existence of such a cause of development pre-supposes the non-occurrence of development where this fluctuation of actions and reactions does not come into play."§ It is evident that this theory, like that of Mr. Darwin, supposes the occurrence of slight structural changes which, in the absence of knowledge as to their exciting causes, may be described as "spontaneous," and the perpetuation of which is the establishment of new forms or species. But among domestic animals,

\* "Revue des Cours Scientifiques," 30th July, 1870, p. 558.

† *Op. cit.*, vol. i, p. 152.

‡ "First Principles," 2nd ed., p. 447, n.

§ "Principles of Biology," vol. i, p. 430.

and by analogy we may assume, therefore, among wild animals, variation in the way supposed is not the only mode by which the physical structure may be modified. Various instances of sudden change have been collected which are very difficult to deal with, and they have led Mr. Huxley to remark that Mr. Darwin's position "might have been even stronger than it is if he had not embarrassed himself with the aphorism '*natura non facit saltum*,' which turns up so often in his pages." Mr. Huxley adds "that nature does make jumps now and then, and a recognition of the fact is of no small importance in disposing of many minor objections to the doctrine of transmutation."\* Minor objections may certainly be thus removed, but only by introducing one of much greater moment. If, as Mr. Spencer says, "natural selection is capable of *producing* fitness between organisms and their circumstances,"† it must be by the perpetuation of slight changes, and there does not, indeed, appear to be any room in the hypothesis of natural selection for the saltatory movements which it is so necessary to explain.

The changes which organisms undergo, whether sudden or gradual, and whatever their approximate exciting cause, take place in pursuance of the evolution of organic nature, and there can be no doubt that this proceeds under the guidance of law. Professor Owen expresses this fact in saying that "generations do not vary accidentally in any and every direction, but in pre-ordained, definite, and correlated courses."‡ This may be accepted as expressing a general truth, subject to some qualification of the word "preordained." It is not exactly true, however, for variations are not always regular and orderly. Within certain limits, indeed, they would seem to take place in any direction, but there is always a tendency for them to accumulate in that course along which they meet with the least resistance. This is in accordance with the principle laid down by Mr. Herbert Spencer, that everything tends towards equilibration, the state being one not of absolute but of moving equilibrium, while "throughout evolution of all kinds there is a continual approximation, and more or less complete maintenance of this moving equilibrium."§ The ultimate result is that, "when through a change of habit or circumstance an organism is permanently subject to some new influence, or different amount of an old influence, there arises, after more or less disturbance of the old rhythms, a balancing of them around the new average conditions produced by this additional influence."|| It is evident that the variations which have been originated before the attain-

\* "Lay Sermons," p. 326.

† "Principles of Biology," vol. i, p. 446.

‡ *Op. cit.*, vol. iii, p. 808.

§ "First Principles," 2nd ed., p. 489.

|| *Ibid.*, p. 500.

ment of the state of temporary stability thus established would have little chance of being perpetuated; and we have probably here the explanation of the fact that the progress of evolution reveals itself so often by sudden movements. In these cases, where the disturbing influence has rendered the equilibrium of the organism affected more or less unstable, a new centre of equilibrium will be formed, and the appearance of a fresh specific form be the result.

However fitted this explanation may be to account for the gaps which so often present themselves in developmental series of animal structures, it is far from sufficient to account for the origin of man, at least on the assumption of evolution governed merely by mechanical principles. Neither man nor animals, in fact, could have come into being at all unless there had been an organic necessity, quite independent even of the general average effects of the relations of living bodies to their environments, insisted on by Mr. Spencer. That these agencies have been very influential in the evolution of organic nature is undoubtedly true. But their influence in this respect depends altogether on the organism on which they act being in a condition of unstable equilibrium. Mr. Spencer declares, when speaking of the condition of homogeneity being a condition of unstable equilibrium, that this instability is "consequent on the fact that the several parts of any homogeneous aggregation are necessarily exposed to different forces—forces that differ either in kind or amount."\* This may be true in relation to animal and vegetable forms, whose germs are supposed not to show the slightest trace of the future organism, although even as to these Mr. Spencer can say that "doubtless we are still in the dark respecting those mysterious properties which make the germ, when subject to fit influences, undergo the special changes beginning this series of transformations."† But the unstable condition of the primeval homogeneous substance of nature could not be due to the cause assigned. For it requires the impossible case of certain forces, the action of which is supposed to result in the condition of instability, existing *outside* of that substance which, as being identified with the Absolute, we must assume to be present throughout all space. The notion of an universally diffused homogeneous substance, acted on by external forces, appears to be contrary to reason; and the proper explanation of the original condition of instability would seem to be that it is natural to the primeval substance as the result of an innate energy, the internal force which constitutes its vitality. But this substance cannot have been merely "material." There is just as little room for transition from the inorganic to the organic as

\* "First Principles," 2nd ed., p. 404.

† *Ibid.*, p. 444.

from the animal to man; there is but one satisfactory starting-point—nature itself viewed as organic.

If such is the case when the changes observable in nature are viewed as strictly evolutionary, much more so is it when they are traced to the lower activity of natural selection. Mr. J. J. Murphy well remarks that "the facts of variability being the greatest in the lowest organisms, while progress has been most rapid among the higher ones, shows that there is something in organic progress which mere natural selection among spontaneous variations will not account for."\* Elsewhere the same writer declares that "no solution of the questions of the origin of organisation and the origin of organic species can be adequate which does not recognise an organising intelligence over and above the common laws of matter," *i.e.*, the laws of self-adaptation to circumstances and natural selection.† This organising intelligence is supposed to have been bestowed once for all on vitalised matter by the Creator, so as to prevent the necessity of separately organising each particular structure,‡ although it is suggested that man's spiritual nature may be a direct result of creative power.§ Mr. Wallace objects to the law of "unconscious intelligence," that "it has the double disadvantage of being both unintelligible and incapable of any kind of proof."|| This is true enough, but it has the equally serious defect of re-introducing the notion of special "creation," with all the difficulties attendant on the origin of matter, and the separate existence of independent spiritual and material substances.

Mr. Wallace himself is so much struck with the imposing position occupied by man that he thinks that "a superior intelligence has guided the development of man in a definite direction and for a special purpose, just as man guides the development of many animal and vegetable forms."¶ He supposes, moreover, that "the whole universe is not merely dependent on, but actually *is*, the WILL of higher intelligences, or of one supreme intelligence."\*\*\* It seems to me, although Mr. Wallace thinks otherwise, that this notion completely undermines the hypothesis of natural selection. If not only the whole universe, but also a particular portion of it—man—has been divinely "willed," analogy will lead us to believe that every other portion of the whole has thus originated.

The difficulties attendant on theories such as those of Mr. Murphy and Mr. Wallace, and the unsatisfactory explanation afforded by the theory of evolution, as usually understood, of

\* "Habit and Intelligence," vol. i, p. 348. 1869.

† *Ibid.*, vol. i, p. 295.

§ *Ibid.*, vol. i., p. 331.

¶ *Op. cit.*, p. 359.

‡ *Ibid.*, vol. ii, p. 8.

|| *Op. cit.*, p. 360.

\*\*\* *Ibid.*, p. 368.



the origin of man, have led me to the opinion that nature as a whole is organic, and that man is the necessary result of its evolution. Not only so, however; man must be viewed as the real object of the evolution of nature viewed as a living organism. Without him nature itself would be imperfect, and all lower animal forms must, therefore, be considered as subsidiary to the human organism, and as so many stages only towards its attainment. But if living nature is an organic whole, its several parts must be intimately connected. Hence the numerous correspondences between man and the higher mammals cannot be accidental or even merely designed similarities. They betoken an actual and intimate connection between the organisms presenting them, and such an one as is consistent only with a derivation of one from the other. This view differs from that of Mr. Darwin, not in the fact of man's derivation from the ape, but in the mode and conditions under which it has taken place. Derivation, by virtue of an internal evolutionary impulse, is totally different from simple descent, aided by natural selection. In the latter case the appearance of man may be described as in some sense accidental; in the former, not only is it necessary, but it is that for which all evolution has taken place, the only condition, in fact, under which evolution was possible.

How far such a development of organic forms as I have supposed is consistent with design is a difficult question. It is apparent that when nature is conceived of as forming an organic whole, the universe becomes identified with the Absolute, of whose being relative nature is merely an expression. But is not the possession by relative existences of intellectual faculties, and of the marvellous power of insight or reflection, evidence that the same powers belong also to the absolute Being? The possession by man of intelligence is, in fact, proof that organic nature is intelligent. Still, however, the need of design is not apparent. Granting that relative nature has been evolved out of the absolute existence, such evolution can have taken only one course—that which led to man, who could appear only when the conditions of nature were fitted for him, and who *must* appear when those conditions were so fitted. Moreover, as man was from the beginning the object of organic evolution, this must have taken place along the line which led to him, without any actually preconceived design or intention other than that which is implied in the pre-knowledge of man's appearance. It does not follow, however, that other branches of organic nature besides that which ended in man may not have reached a stage of structural perfection. No doubt they have so done, and thus we can understand how it is that certain animals seem to have been, as Professor Owen asserts, "predestined and prepared for

man." The fitness pointed out by our great anatomist "of the organisation of the horse and ass for the needs of mankind, and the coincidence of the origin of the Ungulates having equine modifications of the perissodactyle structure with the period immediately preceding, or coincident with, the earliest evidence of the human race," is certainly remarkable.\* I cannot see in these facts, however, anything more than a necessary coincidence arising from the progress of evolution along different planes. It is possible, however, that Professor Owen may mean little more than this, and that he would be satisfied to admit the identity between the "predetermining" agent and organic nature, acting by virtue of the laws of its own evolutionary impulse. So at least may be supposed from the fact that he rejects "the principle of direct or miraculous creation," and recognises "a 'natural law or secondary cause' as operative in the production of species in orderly succession and progression."† It is difficult to understand how otherwise there could be an "innate tendency to deviate from the parental type."

Before concluding, reference should be made to certain facts connected with the development of the brain and the human organism generally, which at first sight seem to be quite irreconcilable with the notion of man's derivation from the ape, even under the conditions I have proposed. Thus, M. Pruner Bey has shown that in man and the anthropomorphous apes there exists "an *inverse order* of the final term of development in the sensitive and vegetative apparatus, and in the systems of locomotion and reproduction." The same inverse order is exhibited in the development of individual organs. Thus it is, says Pruner Bey, with a portion of the permanent teeth; Welcher makes a similar remark as to the modifications of the base of the skull in relation to the sphenoidal angle of Virchow; and Gratiolet points out an analogous fact in the development of the brain. The language of the great French anatomist is very precise. He says:—"With man and the adult anthropomorphous apes there exists a certain resemblance in the mode of arrangement in the cerebral folds which has imposed on some persons and on which they have strongly insisted. But this result is attained *by an inverse process (marche inverse)*. In the monkey the temporo-sphenoidal convolutions which form the middle lobe appear and perfect themselves before the anterior convolutions which form the frontal lobe. With man, on the contrary, the frontal convolutions appear the first, and those of the middle lobe show themselves the last." In referring to these facts, M. de Quatrefages declares that "when two organised beings follow an inverse course in their development, the more highly developed of the

\* *Op. cit.*, vol. iii, p. 795.

† *Ibid.*, p. 789.



two cannot have descended from the other by means of evolution."\* If by evolution is meant simple descent under the influence of natural selection and modification of external conditions, this conclusion is certainly correct. It is true that, contrary to the opinion expressed by Gratiolet, that "the human brain differs the more from that of the monkey the less it is developed, and an arrest of development can only exaggerate this natural difference,"† M. Carl Vogt declares that the human brain may, under certain conditions, not only externally resemble that of the higher apes, but also that the superior portion of it (*parties voûtées*) in microcephalic idiots is really developed after the simian type,‡ the skull itself having both simian and human elements.§ But does not the fact that the lower part of the microcephalic skull, and the portion of the brain, which is the earliest developed, are formed on the human type, amply justify the assertion of Gratiolet that "the microcephale, however degraded, is not a brute, but only a modified man?" Is it not evident, moreover, that however highly an ape brain may be developed, it could not become like that of a man, at least by descent with natural selection? It is different, however, if we view man as the necessary product of the evolution of organic nature. We may well believe that when the sudden advance from the ape structure to that of man was made, under the conditions above proposed, the great increase in the size of the brain and the change in the position of the foramen magnum were accompanied by an alteration in the order of development, not only of the different parts of the brain, but also of the internal apparatus as pointed out by M. Pruner Bey. But the advance having once taken place, the human type can no more be lost; and although the approach to the simian type which appears in the abnormal microcephalic brain evidences the intimate connection between man and the ape, yet it furnishes no disproof of derivation, one from the other, by the agency of internal evolutionary impulse.

In conclusion, I would again refer to the fact, so strongly insisted on by M. Broca, that the truth of the theory of evolution is not dependent on that of the hypothesis of natural selection. The great defect of "natural selection" as an agent in organic evolution is that it cannot do more than perpetuate certain structural peculiarities, the appearance of which it is powerless to explain. The hypothesis is properly defined as "natural selection among spontaneous variations;" and it is the appearance of these variations which constitutes the most

\* "Rapport sur les Progrès de l'Anthropologie," p. 247. 1867.

† *Ibid.*

‡ "Mémoire sur les Microcéphales," p. 197.

§ *Ibid.*, p. 81.

important part of the problem. They can be explained only on the assumption of "an internal tendency to deviate from the parental type;" and granting that this tendency results from a necessary evolution of nature viewed as an organic whole, there is no difficulty in accounting for all the facts dwelt on by Mr. Darwin without supposing the derivation of man from the ape by simple descent, although not without identifying the universe with Deity, and viewing its various manifestations as His organs.

## DISCUSSION.

The Rev. DUNBAR HEATH, while praising the lucid arrangement of the paper, said that not ten lines of it were devoted to the subject intimated by the title—viz., to "Man and the Ape." The paper was upon Evolution in General, and in it Mr. Wake first asserted variation to be "spontaneous," and then gave his own explanation of variations—viz., that all nature was organic. This was a contradiction in terms, for a change which requires explanation of its causes cannot be properly called a spontaneous one. Mr. Heath, while denying that all nature was organic in the sense of being fitted for the formation of organs, explained the steps in nature by which matter rose through the crystallisable to the colloidal state, and agreed that all colloidal nature is organic. In his own view, Mr. Heath said that biologists seemed to turn easy into hard, and hard into easy. At every "variation" men gaped with astonishment, while with him the astounding wonder was that there should be permanence.

Dr. CARTER BLAKE did not think that the word "evolution," which had been warped by Mr. Herbert Spencer and others from its original signification (as the converse doctrine to "epigenesis") was a more lucid term than the word used by Professor Owen—i. e., "derivation." The existence of degraded species like the great auk or the dodo was reconcilable with the theory of "derivation," but not with those of "evolution" or "natural selection." He could not agree that the brain of man was formed upon precisely the same plan as that of the gorilla or chimpanzee. The absence of the external perpendicular fissure alone markedly distinguished the human microcephale from the equatorial ape. As regards the foot of the gorilla, it was singular to notice that, supposing the normal structure of the entocuneiform bone to be departed from by slow variations in the direction of the human foot, such variation of the more reniform figure of the aspect of the surface for the metatarsal of the hallux would render the toe of the ape less serviceable for the purposes of prehension, and more likely to perish in the "survival of the fittest." Noticing some instances of intelligence which he had observed in the spider monkey (*Ateles Geoffroyi*), he objected to the use of the word biology in the sense Mr. Heath had applied to the word. It had been well said that *Bíos* never meant life in the sense of "vitality;" it meant the "life" of a man as progressing in time—his birth, actions, and death. Plato has *Bíos ζωής*, "lifetime of life." Such words as "biology" and "evolution," there-

fore, did not tend to enlighten us. While pleading against the doctrine of natural selection, he did not wish to be interpreted as an advocate of the origin of man other than by derivative secondary laws.

Mr. LEWIS said he should like to ask Mr. Wake what was the cause of the general movement of evolution of which he had spoken? To speak of evolution without some special cause seemed to him like speaking of a steam engine working without either fuel or water.

Dr. CHARNOCK did not agree with Mr. Heath's definition of organic matter. He seemed to imagine that all organic matter must be, or must have been, animate. Surely a piece of coal or a dead leaf must be termed organic. The author of the paper had not mentioned some of the anatomical differences between man and the ape. In man legs are longer than arms; in the highest ape the converse. Mr. Wake admitted that the brain in man is heavier than in the ape, but there is a difference in the form, it being more depressed in the latter. As to the teeth, although they are the same number both in the old world apes and man, and the molars and incisors are the same in form, there is a difference in the shape of the canine teeth. Then again in the ape there is a small pre-maxillary bone, and a very small perforation of the vertebrae of the os sacrum.

Mr. WAKE, in reply, said that the connection between the title and the subject matter of his paper was sufficiently apparent to be justifiable. As to the word "spontaneous" which had been objected to, he used it only in the conventional sense as denoting that the thing referred to appeared or happened suddenly without an assignable cause. Mr. Heath, while admitting that a great part of nature is organic, did not believe that *all* nature is so, the organic character first showing itself with colloidal matter. This, however, was only the ordinary view of nature, and Mr. Wake meant to convey the idea that *everything* may have had an organic origin, although at a certain point most objects cease to be organic. A plant is an organism, but when it dies its component parts are resolved into matter which is not organic. On the same principle every part of nature may once have been organic, but not every part as it now exists. Mr. Burke had said, "admit intelligence to begin with, and everything may then be explained." This is quite true, and he (Mr. Wake) believed that an intelligent Being, in some sense, originated "nature." If, however, Mr. Burke meant that a special plan had been laid down, and that nature had been developed in accordance with it by certain laws, he could not agree with him. The intelligent Being supposed had not the power to turn one thing into another totally different. Mr. Charlesworth had expressed himself as unable to grasp the special purpose for which the paper had been written, and had said that he (the author), although an evolutionist, was not an advocate of natural selection. This was true in the sense that he thought natural selection had had comparatively little influence in producing the world as it appeared around us. He thought that the world as a whole had a basis of organic life, and those who read his paper would be able with-

out difficulty to understand what it intended to convey. He agreed that the intellectual faculties of animals ought to be carefully inquired into. He thought that they differed from those of man only in their capacity for development being limited, man alone having the faculty of reflection or "spiritual insight." Although animals may know a man from another object, yet they cannot distinguish the various qualities which men can separate in their own minds, and afterwards generalise into the conception of "man." Dr. Carter Blake had suggested the use of the word "derivation" in the place of "evolution," but the former word did not express his (Mr. Wake's) meaning, which was that of "necessary development." Mr. Lewis, in asking him for a cause of the cause had gone too far back. With reference to Dr. Charnock's remarks as to the physical differences between man and the ape, he wished only to dwell on those connected with the brain, which were the most important. Finally, man could not have been derived from the ape merely by a process of natural selection. He must either have appeared by special creation, or by a development in accordance with organic necessity, and he (Mr. Wake) preferred the latter as the most reasonable.

The meeting then separated.

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NOVEMBER 19TH, 1872.

SIR JOHN LUBBOCK, Bart., M.P., F.R.S., *President, in the Chair.*

THE minutes of the previous meeting were read and confirmed.

The following presents were announced, and the thanks of the meeting voted to the respective donors.

FOR THE LIBRARY.

From the EDITOR.—*Zeitschrift für Ethnologie*, 4 parts, 1872.

From the SOCIETY.—*Journal of the North China Branch of the Royal Asiatic Society*, No. 5, 1868.

From the EDITOR.—*The Journal of Psychological Medicine*, vol. 6, No. 4.

From the EDITOR.—*La Revue Scientifique*, 16-21.

From the SOCIETY.—*Journal of the Asiatic Society of Bengal*, part ii, No. 2. *Proceedings*, ditto, Nos. 6, 7, and 8.

From the EDITOR.—*Matériaux pour l'Histoire Primitive et Naturelle de l'Homme*, June and July, 1872.

From the ASSOCIATION.—*Report and Transactions of the Devonshire Association for the Advancement of Science*, vol. v, part 1.

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The following paper was read :

*THE MOABITE JARS, with a Translation.* By the Rev. DUNBAR I. HEATH, M.A.

THE authenticity of Mr. Shapira's large collection of jars, bisexual images, inscribed bricks, etc., found lately in Moab, has been for several weeks a subject of controversy in archæological circles. Very carefully executed copies of the inscriptions, etc., were sent originally from Palestine to the offices of the Palestine Exploration Fund. Thence they were shown, of course, to the learned experts of the British Museum, to whom we usually look for guidance in matters of præ-Grecian alphabets and Archaic inscriptions in general. The Phœnician portions of the inscriptions present no difficulty whatever in decipherment, and but little in translation ; and it appears to me that in such cases as this the mode of proceeding ought to be that if a respectable scientific society applies to a national institution like the British Museum officially for information, there ought to be an authorised means of sending a formal report back, embodying the official opinion of that learned body. In the present case, of course, nothing of the sort has been done ; and it must be admitted that mere private opinion here and there has been expressed.

The principal reason given to me against authenticity when I urged the many obvious arguments in its favour was a personal one. It amounts merely to a want of confidence in Mr. Shapira. That the authenticity of two or three hundred pieces of pottery should be denied on no other ground than this seems to me unreasonable. Even while I now write the news comes from the European residents in Jerusalem that this denial has been injurious. A special journey appears to have been considered requisite in order to clear up doubts, and this journey has excited the native tribes round Elealeh and Dibon. It has even been considered requisite to toss away pieces of pottery before their eyes, lest a too high idea of their value should be engendered by the unusual visit. The temper of the tribes is visible in the following quotation :—

"The last ruin was Umm el Rasas, visited simply to investigate the so-called serpent stone, of which Mr. Shapira had a copy, a block of about thirty in. wide, with a bilingual inscription, and a figure apparently of a scorpion and a serpent. Unfortunately, their intention became known to the Hammydeh, and, on arriving at the place pointed out, no stone was found, but surrounding stones had been disturbed, and there was evidence of a large body having been moved. Crossing accidentally the very line along which the stone had been taken, similar traces were visible



at intervals of fifty to a hundred yards, and finally a cistern, with indications as though a heavy body had been thrown into it. Descending, it was found filled with stones, but time and the temper of the people would not allow of a minute investigation.

"From thirty to forty pieces, some of which I have sketched, were brought by Sheikh Ali Diab, as well as a fine pot, with an extremely bold inscription in plain Phœnician characters, found at Khirbet Jemil (?), near Umm el Rasas. The translation will be interesting, as there seems a possibility of its being a votive sentence regarding the ashes of the dead; the pot was closed at the top, and has seven apertures, through which the ashes may have been inserted.

"The expedition now returned to Zamât and Hesban, after a visit of eleven days to the country. It is to be regretted that it became necessary to undertake it, as the chance of obtaining any further specimens on reasonable terms is materially damaged. The country of the Hammydeh is now impassable, and it is with great difficulty that a further collection is being got together."

Our regret at this state of things may, however, be tempered by the consideration that there are vast heaps of such articles lying ready for us in the numerous untouched sites of Moab. For many tens of centuries the country of Ruth, Jesse, and King David was densely peopled by a manufacturing and mercantile race. In Judæa all relics of antiquity were sedulously destroyed by the Crusaders, but beyond Jordan no Crusader ventured, and the expedition I just mentioned from Jerusalem beyond Jordan appears to have learnt for the first time that camel loads of broken pottery are sent from those parts to Damascus, where it is used for the manufacture of cement for cisterns.

If it were not for the reasonable hope that enough inscriptions and to spare for all museums may soon be found, it would be a subject of regret that the whole of the present collection has been secured for Germany. Not that it matters whether France, England, or Germany should hold the bulk of them, but it does matter to the hard-working decipherer that he should be unable to obtain a sight of his materials without the expense and inconvenience of a journey to Berlin.

The reasonable expectation of vast finds in the immediate future is based upon the reasonable opinion that vast hordes exist, and upon the fact that an American expedition is immediately about to set out for trans-Jordanic parts. Let us hope that the fertility of the year 1872, which has given us the Hamath inscriptions and the Moabite jars, may be even surpassed by that of 1873, and that the conception of man as a

Moabite may soon fill up its place among the vacant niches where Gebal, and Ammon, and Amalek, the Philistines also, with them that dwell at Tyre, have still to be erected by comparative anthropologists.

My own inclination would not have led me to fill up nearly the whole of this paper with arguments in favour of an authenticity, the denial of which I can hardly realise. Such arguments seem, however, to be required from some one, so I will take them up briefly in the following order:—

1. The argument from the door-post in Moab compared with the Hamath inscriptions.
2. The originality of mind displayed in the pottery.
3. The expense of the alleged manufacture.
4. The improbability that the Germans have been gulled.
5. The group of arguments founded on the contents of the inscriptions.
6. The argument from the bisexual images.

First, the Moab door-post. This very remarkable "find" is at present in the position of the flower that is "born to blush unseen, and waste its sweetness on the desert air." Not an eye seems to have been opened on it, unless it be my own, nor a breath expended on it. Any visitor, however, to the offices of the Palestine Exploration Fund may see it, in the shape of a long roll of tracing paper, covered with very large figures, hieroglyphical looking in their character, but certainly utterly unlike Egyptian. There are but nineteen distinct characters, and out of these nineteen no less than five are identical with five out of the forty-five Hamath characters, which cannot possibly have been known in Palestine by the supposed forgers of the door-post. There are, in fact, still only half of them published in a correct form, and the remainder will see the light about the same time as this paper, in the "Journal of the Palestine Exploration Fund." I give great weight to this coincidence, from the fact that directly a portion of the Hamath inscriptions was published, scholars began to compare the symbols with scores of known alphabets, and seemed pleased when they found a few somewhat shadowy resemblances here and there, whereas, on this door-post the figures are not resemblances merely, but are palpably the same characters.

Secondly, the originality of mind displayed in the various articles of pottery. They must be seen to be appreciated. They do not display what we usually call art, in the sense of beauty, but they most certainly display a style and type of grotesque uncouthness all their own. In the absence of illustrations I will not dwell upon this, further than to note that there are some hundred or so different articles, and that there is, therefore,



ample material for substantiating the statement that they form a style peculiar to themselves, and very far removed from anything likely to be conceived, or possible to be executed, in the nineteenth century. My recognition also of the god or hero *Sacus*, the *Socus* of Homer, the *Σαυκος* or house protector of the Greeks stamped upon a domestic article may be alluded to under this heading. I pass on, therefore, thirdly, to the expense of the alleged manufacture.

The Phœnician inscription alone on the first jar consists of a hundred and twenty-nine large letters, each of them an inch high and broad in proportion. To form these hundred and twenty-nine large letters moist in clay, and to retain them moist in their places, in four circles round the outside of a moist soft jar, also of clay, to retain them accurately in those places while burning; or, more difficult still to realise by one unlearned in such arts—to press moist clay from within outwards into accurately-shaped figures, leaving the moist letters standing out; and to reduce the remaining parts of the jar to the level of the interval between the letters, seems to me of itself so difficult a task that I should name a considerable number of pounds sterling as the remuneration at cost price necessary for the manufacture of even one jar. Skilful workmen may do much, but they also charge much in these days of strikes; and in such a case the skilful workman would have to be created; and to suppose these articles to have been made abroad and covertly smuggled into Moab for the purpose of being found there, at the peril of the finders' lives, seems to me too ridiculous to be worth controverting.

It is, I am aware, not difficult to quote cases from Pope Ganganelli downwards, where forgeries have been executed. True; but then they have in all these historical cases been also found out. In order to be able to say that such and such a find is a forgery, we must go through the process of bringing forward proofs and reasons, which in the present case has certainly nowhere been attempted. This brings me to the observation that the Germans, who have eagerly and anxiously bought up these most precious records, have themselves seen and handled them, while we, who lightly impugn them, impugn what we have neither touched, nor seen, nor weighed by the evidence of any of our senses. The Germans are not generally supposed to be altogether bad judges in such a case. Professor Schlottman, of Halle, has produced a heavy article upon them in the last number of the "*Zeitschrift für Morgenländische Gesellschaft*," and has without doubt, delay, or hesitation declared them to be, what they most truly are—viz., genuine, and of great scientific value. Hitzig has also taken them in hand as clearly genuine.

But the real argument after all ought to lie in the result of the translation. The letters are by far the best set of Phœnician letters yet known to us. They are in the very best known style of form and workmanship thoroughly well known to us as the Archaic Phœnician. This, I believe, has been disputed, but not, I suspect, by any one who has seen the authentic tracings. If we connect the question of authenticity with that of the power of translation, we must admit that a mere concatenation of letters would have been very suspicious. No doubt it would. But then, on the other hand, the actual result must be doubly convincing, provided we are able to lay down fixed rules of interpretation, and to produce a satisfactory, honest translation.

The rules which I shall lay down are four. First, that since the inscription consists of four closed circles of letters, surrounding a circular jar, we must be careful, after going round the uppermost circle from right to left, to commence the second circle exactly under the commencing point of the first circle, and similarly to commence the third under the second. Now Professor Schlottman, in the article I mentioned, has attempted a translation of these lines. Unfortunately, however, for him, it appears plain that his correspondent in Jerusalem can have taken no sufficient pains to place the letters of the second and third lines in their exact positions with reference to those of the first line. Nor, again, can he have intimated to him at what point in the upper circle the inscription commences. Hence he commenced in the middle, then went round and commenced his second line four letters too far to his own right, and his third line many letters too far to the left, so that the third line was eight letters wrong in its starting point. The correspondents of the Palestine Exploration Fund were very careful in this important matter, and of course gave me a great advantage in the struggle for decipherment by their critical perception of the value of accuracy in this respect.\*

Our second rule of interpretation is, that the language ought to be Hebrew, or a dialect of Hebrew. The Moabites were Hebrews, and three tribes of the Beni Israel were intermixed with them on the other side of Jordan. The Moabite stone, too, is in Hebrew.

But thirdly, I lay it down that the dialect of these jars is an Egyptianised Hebrew; and fourthly, that it is a Nabataeanised Hebrew. This we might naturally expect, as Moab differed from the hilly country of Judæa in not dwelling apart from the mighty nations on her borders as Judæa did to a great extent.

Whether, however, we might have previously expected it or

\* On this important matter, see the plate which accompanies this paper.

not, the language on these jars actually is a Nabatæanised Egyptianised Hebrew, and we may here observe how strong is the argument which this fact supplies for the authenticity of our find. Not only must the supposed forger have been able to create out of the depths of his self-consciousness a new style in art, not only has he executed by far the most perfect Phœnician inscription yet known, not only has he produced sentences that will fairly construe, but he has had the supreme audacity to produce this effect with only about sixteen letters out of the twenty-four, and to do so consistently by dropping just those letters which the two great neighbouring nationalities dispensed with. No one in Palestine, no one in the world, probably, except this gigantic genius, if he sat himself down to a forgery, would have thought of leaving out the letter *l* altogether for instance. This letter *l*, we know, is one of the commonest in the Moabite stone, as in Hebrew and Phœnician generally. As a matter of fact, however, *l* is absent, and as a matter of fact where *l* ought to appear the letter *r* does actually appear in its place, and as a matter of fact the letter *r* does work for *l* in Egyptian, and as a matter of inference, therefore, we deduce that the dialect of this part of Moab at the time these jars were produced was strongly Egyptianised.

So, again, throughout the two jars there appears neither of the two common Hebrew letters tzaddi or zain. *D* and *t* do duty for them respectively. This is a Nabatæan peculiarity. Curiously enough, the interchange is illustrated by the very word which I have translated—"jar." The word "rahad," with a suffixed pronoun, appears as the second word on this inscription. Now "rahatz" is Hebrew, and is known to us in the well-remembered phrase, "Moab is my washpot." The change from *tz* to *d* I assert to be a Nabatæanism. Curious that the quaint phrase about the washpot should be to some extent illustrated by our first find being a jar or washpot. Probably, however, Moab was a great seat of the manufacture of those useful articles. The change from *z* to *t* may be illustrated by the Greek Typhon. We have Zephon in Hebrew, and Zapuna in Egyptian.

It is well known that the Greeks denied their having received more than sixteen letters from Cadmus, the Phœnician. There is certainly not sufficient material on these two jars to allow us to build so great a theory upon them, but if it should be found that long inscriptions are turned up in an alphabet of only about sixteen letters, it might be deduced that the Phœnicians who gave letters to Greece were of a Nabatæan origin.\* It may be

\* This paucity of letters I believe to be the principal stumbling-block at present in the mind of a Phœnician scholar who has privately given some

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 X 11 11 11 11 11

Jar.  
 of Rev<sup>d</sup> J. Niel and  
 Jerusalem the four letters  
 on the four lines are  
 on the jar. The arrows  
 or Schlottman begins each  
 seasons. W. S. Heath.



5 5 0 0 9 2 X  
 0 0 0 0 0 0 0





here remarked that a forger substituting *r* for *l* throughout the jars would hardly have allowed a statue of a goddess two feet high to be found in the same locality with an *l* in her title—El. Omt. Professor Schlottman is agreed with me in thus reading her title.

A very common word in the Hebrew language is *obed* or *abd*, as the Arabs, I believe, now pronounce it. How intelligent must have been the forger who on those jars wrote neither *obed* nor *abd* but *ubed*. It strikes me as much more likely that the dialectical variety in those parts really was *ubed*, than that the forger should have invented it.

Our forger must have not only known the alphabet of the Moabite stone, but the niceties of grammar in that remote age. We had supposed ourselves to have learnt two things in this department from that stone. One of them our forger thought he would corroborate, but the other he has disallowed. We have to thank him for agreeing with the Moabite stone in discarding five out of the seven ordinary Hebrew verb conjugations, and he has been thoughtful enough not to retain any two at hap-hazard, but just those two in which the Hebrew coincides with the Egyptian—viz., *kal* and *hiphil*. On the other hand, the personal pronoun *Hu* is found in the Moabite stone both as a masculine and a feminine, and it had been thought that the comparatively few cases in the Pentateuch where the feminine is given as *Hi* were due to the "emendations of late redactors, who attempted to make the orthography of the Pentateuch uniform with the developed state of the language."\* The forger, however, clearly differs from this view, as he gives the orthography of *Hi* distinctly for the feminine pronoun.

And now a few words on the method I followed in my decipherment. Taking the first jar, and remembering the dialectical variations I mentioned above, we see seven or eight words which may very fairly be taken as connected with Hebrew roots. I mean such words as to wash, to be gracious, to cut, and to raise; also servant and wife, knowledge and might: secondly, there are two or three Hebrew particles, such as "in," and "this one," and "she." There are also proper names: for when we read, "Jai *ubed* ishachi," we do no violence to probabilities in translating it "Jai, servant of Isaac." I mention here that I believe the word "*obed*" is generally appropriated to the worship of *deceased* heroes or ancestors, and if so, this

attention to this question of authenticity. To him then I would remark that the great Egyptian people got on very well for some thousands of years with only thirteen consonants. These consonants are *b, p, f, m, n, r, h, ch, s, th, k, dj*, and *t*. See Champollion and Brugsch's Grammars, also Bunsen's "Egypt."

\* See Ginsburg on the Moabite stone, p. 27.

Isaac may not improbably be the patriarch himself. To proceed, however, with our decipherment, we have lastly, two very peculiar words, "amach" and "omt," which were the key to my translation. Amach is very common in Egyptian, in the sense of *devoted*; Omt is both Egyptian and Hebrew. The root is *om*, which means *with*: *t* is a feminine suffix, so that *omt* means *unity*, and *t-mo* and *om-t* I connect with *thummim* and what we usually pronounce *ma-tu* in Egyptian, meaning justified by union with Osiris.\*

I suspect that Professor Schlottman's correspondent cannot have sent him the two little teraphim images which our clever forger was cunning enough to produce with the word "amach" on one, and "omt" on the other. These, I say, were the key to the whole riddle, and with them any Egyptologist would have been able to open the door.

A few letters I leave untranslated. I might make some sort of a sense, but I prefer waiting for more material, which will doubtless soon arrive under the auspices of the American expedition. The following are my translations:

JAR 1. Inscription on his jar dedicated by Jai, servant of Isaac, in Mesha, such as is raised in devotion to Nataracu. This is a devotion to Dov, wife of Domiadu, the same who in the might of her knowledge has been incorporated with Mesho —. She is united with Hachuasho, in Mesha; raised to unity with Daocash. May he be gracious.

JAR 2. From Jebel Attarus. Inscription on his Jar dedicated by Jehoshidu —. This is a devotion to Dahak Cosbo, wife of Dom, raised in devotion to Nataracu. May he be gracious. She is united with knowledge, raised to unity with Daocash.

I subjoin to the above the following transcription of the letters running round the two jars into the character which is commonly called the Hebrew; but I know no good reason why such a very inconvenient character as this should be dignified exclusively with the name of Hebrew, in opposition both to the Samaritan and to the Archaic-Hebrew or Phœnician.

#### FIRST JAR.

נדה רהרו עמה ר יאי ובר ישחי ער משא תח  
 נשה ר עמה נתארחו תח אמח דעו ישה דמ  
 יעדו תח ר שרתי דאתהי נחעמת משע (תנעדרתהמרא)  
 ה"א תמע החואשעה ר משה נשי ר תמע דאעחאש חנרו

\* See Ecclesiastes, vii, 14, את זה לעמת זה "one in correspondence with the other."

## SECOND JAR.

נהד רהדו עמה ר יהשירו (יא'אתח) תח אמה  
 דהח קשעו \*משה דם נשה ר עמה נתארחו  
 חנרוו היא תמע המדאתה נשי ר †(ת)מע  
 דאעחאש

One result of the exclusive use of the term "Hebrew character" or "Hebrew alphabet," for the square character used by the two tribes Judah and Simeon, is that a modern standard is erected in judging of dialectical varieties of writing among the Hebrew tribes. The words רהצ and זה for instance, and עבר and עבר are found in the literature of the two tribes. If other forms should be found among the Hebrew-Moabite tribes, we immediately refer them to our square type standard, and after writing them down as רהד תח ער and ובר we pronounce them barbarous, forgetting that both sets of forms may be equally debased, being in a modern character, which character, viz., the square Hebrew, is, in my opinion, very much below the one from which it was developed in legibility and general convenience. I would undertake to write anything fully twice as fast in the Phœnician Hebrew, as in the square Hebrew.

It might be instructive to devote some space to an examination of some of the names in these inscriptions; but it may be wiser to wait for fresh material. A third jar has indeed already been found by independent searchers; but after what has passed, it is natural that the copy of the inscription should have been sent exclusively to Germany. Suffice it to say that we ought to distinguish between Mesha and Mesho, as the Hebrew Old Testament itself does. The king named in the Moabite stone we always call Mesha, but the proper name is Mesho, and Mesha seems here to be a locality.

There remains only now the very important subject of the bisexual images. There is, in the present state of our knowledge on the subject of ancient religions, very little difficulty in seeing that the specific work of the Jews in the matter of religion, was utterly to set their face against and ultimately to succeed completely in putting down "symbolism." Such images as these now found in Moab, though meant to be symbolic of what the Jews themselves believed, were nevertheless altogether condemned by them. To suppose that any forger of

\* This *m* seems a mistake for *i*.

† This *t* is omitted in the copy sent home by the Rev. J. Neil and Dr. Chaplin.

these images should have known what to symbolise, and how to do it, seems to me an outrage upon common sense.

That the ancients were philosophers, that they contemplated Nature, that they were vividly impressed with the disunion, the contest, the struggle for existence, the alternate lives and deaths in nature, we know well; and two systems alone seem possible in explanation (as it is called) of the mystery. The Aryan races leant principally to dualism, as in the Ormazd and Ahri-man theory. According to this system of philosophy or religion, two Powers are perpetually struggling in nature. They prevail alternately. Gods, in this view, are not considered as contemplative calm beings, but as fiercely contending, and even as undergoing suffering. It is worthy of remark that the Aryan races alone have accepted Christianity in a large way; the reason being that Christianity is not a religion of silence or enjoyment, but of work, labour, and suffering. The Semite system, on the contrary, is that nature is self-regenerating. When Nature dies in winter, Nature regenerates itself in spring. According to this view the Deity is a Self-existence, annually dying and being born again. The symbolism of our double images is now obvious enough, and would be comprehended even among a rude, ignorant people. What we are concerned with at present is to note that the Israelite-Hebrews living in a secluded mountainous country, were ultimately able to put down all the symbolism expressing this; and that the Moabite-Hebrews, being on the highway of traffic between mighty countries, retained the symbolism in the form of bisexual images. So the double god engendered man in his image (the Phœnicians would say), in the image of the double god engendered he him, male and female engendered he them.

There seems considerable evidence in the writings of the Jewish prophets, that the annual festival of the death and birth again of Adonis was almost tolerated in Judæa itself. Certain it is that the difference between the Phœnician Jav and the Jewish Jehovah, was that the former was distinctively and specially the new born deity in the arms of its mother.\* A bronze circular tray discovered at Olympia, in Greece, and now in the museum at Athens, shows in three departments the infant god in arms, the full-grown bearded god in contest with a wild beast, symbolising the powers of evil, and the youthful god on earth again after death and resurrection, without beard or sex. The symbolism of this third division seems alluded to by St. Paul, in the passage about "neither male nor female." No doubt the very wide spread prevalence of this particular sym-

\* See the "Pistis Sophia," c. 12, *Parvus 'Iaw.*

bolism was one great cause of the comparatively easy acceptance of Christianity among the ancients.\*

Those who wish for information on the subject will find a large amount of material in the second volume of Lenormant's "*Lettres Assyriologiques*," to which I would refer as the work, not only of a most accurate, learned, and honest scholar, but of a strenuous defender of the French Church and the Christian religion.

#### DISCUSSION.

Mr. J. P. HARRISON on carefully comparing the letters on the jars with those on the Moabite stone, found that a majority of the letters on the stone appeared in the inscriptions on the jars. Amongst the letters, however, which occur frequently on the Moabite stone, but do not appear at all on the jars, are *b*, *k*, and *l*. Of these *b* (*beth*), as might have been expected in a Moabite inscription, occurs on the stone more frequently than any other letter of the alphabet except *aleph*, viz., eighty-three times, or, on an average, once in seventeen letters. And it enters largely into Moabite proper names, *e.g.*, Rabba, Beth-Baal, Nebo, Balak, etc. If the jars prove to be genuine, it is possible that *daleth* may be found in some cases to have been read instead of *beth*, the old forms of the letters being much alike.

Mr. COOPER remarked that it was exceedingly unsatisfactory to discuss antiquities merely from drawings; judging from which, the objects might be of any date from that of Ashmanazeer, B.C. 600, to the present century. In an artistic point of view the antiquities were not sufficiently Archaic to be reliable, and more resembled the spurious terracottas manufactured in the eighteenth century to form the collection of Pope Ganganelli. This especially applied to the Phallic and bisexual figures and emblems, which bore a far greater similarity to a western nature cultus, than to that of the known features of Semitic mythology. For the same reasons, the analogies drawn by Mr. Heath from the gnostic symbolism of the gods,  $\text{IA}\Omega$  and  $\text{E}\Lambda\Omega$ , were of too recent a period to elucidate the subject. In a purely philological sense Mr. Cooper did not agree with a translation composed of words and letters from languages which had only a geographical affinity to Moab. The sole instance adduced by Mr. Heath, that of an Hieratic papyrus of the twelfth dynasty, was unique, and it besides contained only a few foreign words; while the grammatical errors would be just such as a clever forger would fall into, who had but a cursory knowledge of the Phœnician language. At the same time, while differing from Mr. Heath's conclusions, Mr. Cooper was of opinion that great credit was due to that gentleman for his assiduity, and the very ingenious theory he had put forth, which he hoped would awaken an interest in these and similar matters that the society would not let drop.

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\* The death and resurrection of a deity were by no means a new or strange idea to them.



The Director read the following paper :

*On HUMAN REMAINS and OTHER ARTICLES from Iceland.* By  
Captain R. F. BURTON, H.B.M.'s Consul, Trieste.

I HAVE the pleasure to forward, for the inspection of the Anthropological Institute, a small collection of human remains and other articles from Iceland.

The site of the "find" will readily be found upon the four-sheet map of Gunnlaugsson and Olsen. Cast the eye eastward of the great southern stream "Markarfljót," march or forest flood—whose eastern delta-arm debouches nearly opposite to Vermannaeyjavr—Islands of the Westmen—that is to say, of the Irishmen. You will see on the left (east) of the stream the little valley of Thórs mörk, the grove of Thor, a good sturdy old god whose name still lives and thrives in Iceland. He was even preferred to Odin—"Hinn Almátteki A'ss," "that almighty A'ss"—by the people of Snowland; and in more modern days he was invoked when a doughty deed was about to be done, the deities of Christianity being preferred only when the more feminine qualities of mildness and mercy were to be displayed.

The valley in question is described by the "Oxonian in Iceland" as a "beautiful, green-wooded spot," near which the Markarfljót flows. About eight miles long, with precipitous sides, its site is bisected by a narrow but tolerably deep "boulder-river"—a bugbear, by the by, of Icelandic travel—and this must be repeatedly forded. The map shows a green patch, the shrubs may average six feet, whilst one monster, a mountain ash, attains the abnormal attitude of thirty to thirty-six feet. It is one of the tallest, if not *the* tallest in the island. The two "giant trees" of Akreyri, which every traveller is in duty bound to admire, do not exceed twenty-five feet.

Reaching, on July 16, 1872, Thingwalla (Dingwall or Thingwall), after a Cockney tour to Hekla and the Geysirs, I met a young Englishman, who was returning from a sketching expedition round the now rarely-visited south coast. From Hekla I might easily have made Thorsmörk in a day, but the depôt of bones was then unknown to me. Mr. W—— had travelled from the Eyvindarholt farm, west south-west of the site of the find, in some six hours of fast work, and complained much of the road. There are only two guides, and the half-dozen influents of the Markarfljót were judged dangerous. It is only fair, however, to state that he had read the "Oxonian in Iceland," and he was prepared to ford the terrible torrents, nearly three feet deep! in boots and "buff." After passing the sites of many fine farms, now destroyed by the ever-increasing ice, he entered the valley from Eyvindarholt by a rugged entrance, leaving the



bone heap about half way and to the right of his track. The remains lie under a cliff where much rocky matter, possibly moraine, has fallen. Above it is the ice-foot, projected by the great glaciers and *nevels*, Merk-Jökull and Godalands Jökull, which rise to the north-east and south-east of it, whilst the rest of the valley, where eternal winter has not overwhelmed the woods, is the usual Icelandic green—vivid and metallic. The heaps evidently consist of

“ The bones of men  
In some forgotten battle slain,  
Bleached by the drifting wind and rain.”

Social tradition assigns them to the troublous times of “Burnt Njal,” made known to England by that ripe Scandinavian scholar, Mr. G. W. Dasent. This must be expected in these parts of Iceland; several of the remains, however, are described as those of infants.

From Bjarni Finnbogusson, who as a “youth of great energy and pluck” had accompanied Mr. Shepherd, of north-western peninsula fame, and who, developed to a prodigious rascal, had undertaken Mr. W——, I took the cranial fragments marked A and B. Arrived at Reykjavik, he agreed for twenty-seven rix-dols. (say £3) to ride back and bring me as many skulls as could be found or dug up. After attempting in vain—he had taken earnest money—to throw me over in favour of another party of travellers, he set out on Saturday, July 20. He was not to return till the next Friday evening, but wishing to secure more victims, he came back on Thursday, too soon for any good results. Also, he charged me for doing nothing thirty-two rix-dols. instead of twenty-seven rix-dols., which extortionate demand was satisfied rather than run the risk of men saying that an Englishman had shirked payment. I have the pleasure, despite sundry certificates obtained from various innocents, his dupes, to give him the very worst of characters, and strongly to warn future travellers in Iceland against him. The guides at Reykjavik are not worse than the generality of their craft, *pace* Mr. Baring-Gould; some are better; but Mister Bjarni—he is generally called by his English employers Blarney and Barney—is a bad lot, who knows well how to *pelare la quaglia senza farla gridare*.

The following are the principal items herewith forwarded:—

Three fragments of thighbones.

One large hone. Three smaller.

One parcel of sundries.

One broken spindle (?). Steatite (?).

The hones, of which there is an interesting collection in the young museum of Reykjavik, are interesting. The old world

Icelanders, as Uno von Troil informs us, ever held it a "noble art to understand well how to sharpen the instruments of death." I add a pair of Iceland shoes, the "revelins" of our Scoto-Scandinavian islands, as they readily explain why the people are not mountaineers. Also a specimen of the normal pack-saddle, with pegs of reindeer horn, and the very appropriate "namdabs", peat slabs, the *Menyanthes trifoliata* being always preferred. It will warn travellers what to expect, and tourists will select their "impedimenta" accordingly.

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The following paper was read by the author.

NOTES on HUMAN REMAINS brought from Iceland by Captain Burton. By C. CARTER BLAKE, Doct. Sci., M.A.I., Lecturer on Comparative Anatomy and Zoology at Westminster Hospital.

THE remains which Captain Burton has brought from Iceland are composed of fragmentary evidences of man, hog, ox, and horse.

#### I. MAN.

There are five races of man with whom any remains which may be found in Iceland may be compared with a view to their identification—the Norwegian, Skrælling or Esquimaux, Irish, Lappish, and Russian. I shall briefly pass over the chief characters of these races, and as the Norwegian is the race which forms the majority of the Icelandic population at the present time, I shall commence with it.

The late Dr. James Hunt, during his tour in Norway, collected an enormous amount of statistical facts with regard to the cranial measurements of the Norwegians, which were verbally communicated to the British Association for the Advancement of Science at Birmingham.

The publication of the memoir containing them was postponed at the wish of the author, and I am consequently only able to refer to my own rough notes, taken at a time when I examined the manuscript of my lamented friend. The general results seem to have been that the Norwegian skull, excluding from consideration all persons apparently of Lappish descent, was excessively short and round, that cases of brachistocephaly were frequent, and that cases even of hyperbrachistocephaly were to be found. The district investigated by Dr. Hunt was chiefly to the north of Drontheim, and especially the neighbourhood of Hammerfest. The Swedish skull, on the other hand, appears to be dolichocephalic to a degree; while the researches of Dr. Beddoe on the head forms of the Danes indicate a population whose cranial index oscillates from 85·9 to 75·3.

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*Kell Bros Lith London*

HUMAN CLAVICLE. ICELAND.

The cranial characters of the Esquimaux, Irish, Lappish, and Russian races have been so often described, that I pass over the minute comparison, and proceed at once to the evidences on the table. These consist of the following specimens:—

1. Fragmentary calvaria of adult human individual. The contour of the skull has been brachycephalic, though its measurement is precluded by the fact that the left parietal, which alone exists, has been broken off from the frontal bone. The frontal region is bombate. Moderate superciliaries overhang a shallow supernasal notch. The nasal bones extend forwardly, and have not the slightest approach to the form presented by the Esquimaux, and in the "Turanian" skulls described by Dr. Pruner Bey. The superorbital foramina are converted into notches on both sides. A small piece of the alisphenoid bone exists, attached to the right frontal, indicating that there was a normal spheno-parietal suture. The dentitions and seriations in the coronal suture have been deep. The parietal bone of large size accords with the frontal in all essential characters of these sutures.

The occipital bone is in a very fragmentary condition. It is not marked with any prominent ridges for the attachment of muscles, a fact which, coupled with the small development of the mastoid processes, leads the observer to consider that the present skull has belonged to a female.

Three petrous bones, with fragmentary mastoid processes attached, exist in the collection. The smaller size and parial relationship of two of these render it probable that they belonged to one individual, and that the same whose cranial vault has just been described. One large, light, petrous bone appertains to an individual of much larger size, possibly masculine, but I regret that no other specimens are found of this interesting person.

A fractured palate, with two teeth *in situ* (the first and second molars), leaves evidence highly conclusive as to the food of the inhabitants of Thorsmörk. The crowns of the molars are much attrited by the consumption of hard substances, and are in the same condition as is presented by the teeth of the neighbouring but different race of Skräellings. The first and second molars are both implanted by three fangs.

The right clavicle (pl. xix), which is found with both extremities broken away, indicates an individual smaller in size, and with lighter and more slender clavicles, than the Australian drawn by Owen in "Trans. Zool. Soc.," vol. v, plate ii, figure 4, and of course more so than in the European drawn in figure 2 of the same plate. Three long and slender femora, a right first rib, a large axis vertebra, a fragment of shattered humerus, and a cuneiform carpal bone are found in the collection.

## II. Hog.

The remains consist entirely of fragmentary limb bones and of a few teeth. These need not be noticed in detail.

## III. HORSE.

The equine remains from Thorsmörk are interesting. The first molar, and the fourth premolar tooth of the lower jaw, as well as the third deciduous molar of another individual, indicate the existence of a horse of ordinary dimensions as large as the ordinary European horse of the present day, and larger than the Shetland or Dartmoor ponies. There are few points of resemblance between these teeth and those of the *Equus spelæus* figured by Owen. ("Philosophical Transactions," 1869, plate 57.)

## IV. Ox.

Teeth of the *Bos taurus* are present, though in an imperfect condition.

From the above remarks it will be, I believe, clear that the skulls now described belong to the Norwegian race, though possibly there may be an admixture of Celtic blood derived from the descendants of the Irish prisoners brought into Iceland by the Norsemen. But in no sense can these be termed any Esquimaux or "Boreal" affinities. That prior to the year A.D. 860, when the expedition of Naddod to "Snæland" brought Iceland face to face with Norwegian civilisation, a more ancient race, allied to the Esquimaux, may have existed in Iceland is a possible speculation, but one of which as yet we possess no anthropological proofs. The domestic fauna which exists in Iceland appears to accord for the most part with that of Norway, and the people do not appear to possess any intermixture of Esquimaux blood.

## DISCUSSION.

Mr. MAGNUSSEN said, as regards the possibility of an admixture of Esquimaux blood in the Icelandic nation it cannot be maintained on historical grounds. There is no record extant to countenance the supposition that at any time Iceland has been inhabited, wholly or partially, by this polar race. The island lies out of the belt of the Esquimaux, and he would find himself there entirely out of his element, the conditions for the existence of human life in Iceland being entirely different from those on which life in the polar regions depends. The parts of the country first discovered by the Norwegians were found to be entirely uninhabited; and it was first in A.D. 874, or thereabouts, that the first settlers came upon living human beings there. These, however, were not Esquimaux, but Irish culdees, who had taken up their hermit abode in some of the outlying islands off



the south and south-east coast—their solitude being more congenial to the spirit of the anchorite than a residence on the mainland, which meant a more energetic fight with nature than a residence on the islands. The spirit of priest and pirate being then no more homogeneous than now, the Westmen—as they were called by the invader—were soon destroyed. This is, briefly stated, what we learn about these Westmen from Icelandic sources of history. But from Irish sources we learn more. The Irish monk Dicuil, of the eighth century, has written a book called "*De Mensura orbis Terræ*," in which he says that in A.D. 795, he spoke to some Irish hermits having returned from an island in the north, which he calls *Ultima Thule*, and which from his description can be none other than Iceland. It is therefore certain that Iceland had been discovered from Great Britain or Ireland some seventy years at the least before the Norwegians ever came there. As to the human remains before us, they need be no older than the eleventh century, unless scientific evidence should prove the contrary, for at the beginning of that century, and long afterwards, *Thórsörk*, the locality from which they are said to come, was an inhabited countryside. Their real value, I presume, depends entirely on their antiquity; but being no philosopher in matters of this nature, I take leave of the bones and Captain Burton's paper, which has thus far disappointed me, that I have learned from it much less than I anticipated.

Dr. CARTER BLAKE agreed with Dr. King that no affinities to the Esquimaux were presented by the present specimens. Many Lapp skulls existed in the Continental museums, and some *Tschuktchi*; but there was great dearth of Esquimaux skulls from Behring's Straits. On the hypothesis that the Aino skulls exhibited Esquimaux affinities, it was difficult to discuss the question. Dr. Rae's observations on the stature of the Esquimaux were certainly interesting. The skeletons in our museums were short and stout; but how far were they typical examples of the race? The circulation of the queries by the Arctic Exploration Committee would tend to elucidate these questions. With regard to the observations which had fallen from Mr. Erik Magnusson; he was himself "agreeably disappointed" that the Institute was not to be converted into a '*holmgang*' wherein to criticise Captain Burton's excellently narrated facts. He failed to perceive what evidence a French or Irish monk could have possessed of Culdees in Iceland in A.D. 795, as Iceland was not discovered (according to Mr. Magnusson's statement) till A.D. 874, and according to ordinary chronologists, till A.D. 860. In matters wherein the veracity of a distinguished traveller had been attacked, it was necessary that the utmost care should be taken respecting facts and dates. Captain Burton in no part of his paper assigned a high antiquity to the bones, which may either belong to the time of Björnt Njal, or to a far more recent period.

The meeting then adjourned.

DECEMBER 3RD, 1872.

SIR JOHN LUBBOCK, Bart., F.R.S., *President, in the Chair.*

THE minutes of the last ordinary meeting were read and confirmed.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

## FOR THE LIBRARY.

From the AUTHOR.—*Les Derniers Travaux relatifs aux Bohémiens*, by Paul Bataillard.

From the SOCIETY.—*Proceedings of the Royal Society*, vol. xx, No. 138.

From the AUTHOR.—*Project of an Instrument for the Identification of Persons*, by Joseph Bonomi.

From the EDITOR.—*Human Nature for December, 1872.*

From the SOCIETY.—*Oversigt over det Kongelige Danske Videnskabsnernes Selskabs*, No. 3, 1871, No. 1, 1872.

From A. W. FRANKS, Esq.—*Berliner Gesellschaft für Anthrop., Ethn., und Urgeschichte*, 13, 17, April 1872.

From the EDITOR.—*Nature (to date).*

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Colonel A. LANE FOX exhibited a series of stone celts, and read the following communication thereon:—

COLONEL A. LANE FOX exhibited seven stone celts presented to him by Colonel Pearse, R.A., who procured them from the grove and hill-top temples of the Malayalis or hill tribes of the Shevaroy Hills. Salem is the capital of this district, situated on the railway, half-way between Madras on the east, and Beyypore on the west coast.

The following are the forms and dimensions of these objects: No. 1.  $5\frac{1}{2}$  in. in length,  $2\frac{1}{2}$  in. greatest width,  $1\frac{1}{2}$  in. thick, slightly chipped edge, almond shaped. No. 2. 5 in. in length,  $2\frac{3}{4}$  in. in width,  $1\frac{1}{2}$  in. thick, chipped on edge, nearly triangular. No. 3.  $4\frac{1}{2}$  in. in length, 2 in. in width,  $1\frac{1}{4}$  in. thick, triangular. Nos. 4 and 5.  $3\frac{1}{2}$  in. in length, 2 in. and  $1\frac{3}{4}$  in. in width,  $1\frac{1}{2}$  thick, irregular wedge-shaped. Nos. 6 and 7.  $2\frac{3}{4}$  in. in length,  $1\frac{1}{2}$  in. in width,  $1\frac{1}{4}$  and 1 in. thick. All appear to be composed of a hard dark-coloured trap rock, and are a good deal weathered.

Another stone of jasper, found in the Kamptee cantonments, is a purely natural form. This, Colonel Fox observed, was the second natural pebble he had received within the week from distant countries; one from India and the other from Greece,

both forwarded by intelligent observers, showing how necessary it is to study closely the lines of fracture, in order to distinguish readily the natural from the artificial forms.

By a communication from Colonel Pearse to Colonel Fox, it appears that these celts are deposited as votive offerings by the Malayalis in their temples to Purinall, their chief deity, and are called by them "Wigginespoora," which means "that which takes our ills upon itself." They are not made by the Malayalis, but are found by them in the bed of a river half-way up the hills, *i. e.*, about 2,500 feet above the sea level, and chiefly in one place near where the present British road crosses the river. There are not many of these aboriginal temples existing now-a-days, and they are chiefly in out-of-the-way hill places, and are constructed of wood. Colonel Pearse adds that these celts, when found by the Aryan populations of the plains, are considered by those who know anything about them (and there are not many who do), to be the thunder bolts of Vishnu, *i. e.*, of God. Of the seven specimens exhibited, four will be presented by Colonel Pearse to the Christy collection, and he has also deposited some in the Madras and Bangalore museums.

By this instructive but only too brief communication, Colonel Pearse adds to our knowledge of the distribution and attributes of these implements of Southern India. Mr. Bruce Foot, in a paper read before the International Congress of Prehistoric Archaeology of 1868, had already informed us of his discovery of implements of neolithic types in the neighbourhood of Madras and Nellore. They were there found by him in rain-gulleys on the surface, associated with stone circles and intrenchments attributed by the natives to the Kúrúmbers or mythical inhabitants of prehistoric times, and overlying the laterite formations which contained the ruder implements of palæolithic types, the two classes of implements thus corresponding accurately, both as regards form and position, to the neolithic and palæolithic types discovered in Europe.

Further to the north, in Bundelcund and the neighbourhood of Jubbulpore, stone celts have also been found, and in Burmah nearly similar implements, known by the appellation of mo-gio, have also be discovered by Mr. Theobald; they are there, as by the Aryan inhabitants of the plains about Salem, regarded as thunderbolts; and they are also considered influential in rendering their possessor invulnerable. More detailed information respecting these South Indian stone implements would be desirable, and more especially it would be interesting to know whether, as suggested by Colonel Pearse, there is any marked difference in the superstitions associated with them by the Aryan and hill-tribes, as affecting the religious beliefs of those people.

Together with the stone implements, Colonel Pearse also sends a large iron adze and handle of very antique form, respecting which he says "I bought it of a stone cutter on the western-coast of India, at Cannanore. It is for smoothing laterite stone, a soft spongy stone of which all the buildings there and thereabouts are built. You see how simply it is put together, as the men of other days no doubt hafted their adzes. And the shape tells us the use of many of those huge stone hatchets, one of which I have seen in your collection, and another found in Guernsey, I saw with Mr. Lukis. I thought you might like this, and thus secured it."

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Colonel FOX then read his Report of Anthropology at the Meeting of the British Association, as follows:—

*REPORT on ANTHROPOLOGY, at the MEETING of the BRITISH ASSOCIATION for the ADVANCEMENT of SCIENCE for 1872, at BRIGHTON.* By Colonel A. LANE FOX, Vice-President of Section D. and Chairman of the Anthropological Department.

At the request of the Council I lay before the Society a Report on the Anthropological Papers, read at the recent meeting of the British Association, at Brighton.

This having been the first meeting of the Association, held since the adoption of the new regulations, under which the officers are appointed beforehand to the department of Anthropology, it became possible to classify the papers so as to devote a separate day to each branch of Anthropological science. The advantage of this arrangement soon became manifest. In consequence, however, of the regulations not having been thoroughly understood, many authors failed to send in their papers at the appointed time; owing to this cause, and to the inability of some of them to attend on the days fixed for the reading of their papers, the classification was not as complete as could have been desired. It is to be hoped that in future the particular attention of authors may be directed to the regulations on this head, in order that full justice may be done to their contributions, and that each branch of the science may receive due attention in the deliberations of the department.

The arrangements for the study of Anthropology have, upon the whole, been promoted by the recent changes. Some of the provisions affecting the practical working of the regulations may, however, in all probability require revision hereafter.

Sir JOHN LUBBOCK, Bart., M.P., F.R.S., having been named President of Section D, Biology, the following officers were appointed to the sub-department of Anthropology :

*Chairman*—Colonel A. LANE FOX, Vice-President of Section D.

*Secretaries*—F. W. RUDLER, Esq., and J. H. LAMPREY, Esq.

The several papers classified by subjects, were read during the successive days of the meeting in the following order :

THURSDAY, August 15th.

Opening Address by Colonel A. LANE FOX, Vice-President.

PREHISTORIC ARCHÆOLOGY.

1. Results of ten years' Barrow Digging in the Yorkshire Wolds. By the Rev. Canon Greenwell.

2. Exploration of some Tumuli on Dartmoor. By C. Spence Bate, Esq., F.R.S.

3. On some Bone and other Implements from the Caves of Perigord, France, bearing Marks indicative of Ownership, Tallying, or Gambling. By Professor Rupert Jones, F.R.S.

4. Discovery of a Flint Implement Station in Wishmore-Bottom, near Sandhurst. By Lieut. Cooper King, R.M.A.

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FRIDAY, August 16th.

ETHNOLOGY AND PHILOLOGY.

1. On certain Geographical Names in the county of Sussex. By Dr. Charnock.

2. On the Etymology of certain River Names. By Dr. Charnock.

3. On the Gipsy Dialect called Sim. By Dr. Charnock.

4. On the Origin of Serpent Worship. By C. Staniland Wake, Esq.

5. On the Origin of Alphabets. By John Evans, Esq., F.R.S.

6. On the Ethnological and Philological Relations of the Caucasus. By Hyde Clarke, Esq., D.C.L.

7. On some Evidence suggestive of a Common Migration from the East, shown by Archaic Remains in America and Britain. By J. S. Phené, Esq.

8. On the Predominating Danish Aspect of the Local Nomenclature in Cleveland, Yorkshire. By the Rev. J. C. Atkinson.

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SATURDAY, August 17th.

PREHISTORIC ARCHÆOLOGY.

1. Report on the Victoria Cave, explored by the Settle Cave Exploration Committee. By W. Boyd Dawkins, Esq., M.A., F.R.S., and R. H. Tiddeman, Esq., M.A.

2. On some Stone Implements and Fragments of Pottery from Canada. By Sir Duncan Gibb, Bart.
3. On a Patto-Patto from New Zealand. By Sir Duncan Gibb, Bart.
4. On the Primitive Weapons of Ancient India. By Sir Walter Elliot, K.C.S.I.
5. Second half of paper on the Results of ten years' Barrow Digging in the Yorkshire Wolds. By the Rev. Canon Greenwell.

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MONDAY, August 19th.

ETHNOLOGY—DEDUCTIVE AND DESCRIPTIVE.

1. On some Skulls discovered by Canon Greenwell in the Yorkshire Barrows. By Professor Rolleston, M.D., F.R.S., Professor of Physiology at Oxford.
2. On some Skulls of the Weddo of Ceylon. By Professor Rolleston.
3. Notes on the Looshais. By Dr. A. Campbell, M.D.
4. On the Gāro Hill Tribes, Bengal. By Major Godwin-Austen.
5. On the Religious Cairns of the Himalayan Region. By R. B. Shaw, Esq.
6. On the Manyema or Manyema of Dr. Livingstone. By Hyde Clarke, Esq., D.C.L.
7. On the Roumanian Gypsies. By Dr. Charnock.
8. On the Ethnological relations of France and England. By Dr. Nicholas, M.A.
9. On the pretended Identification of the English Nation with the Lost Tribes "of the House of" Israel. By A. L. Lewis, Esq.

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TUESDAY, August 20th.

PSYCHOLOGY AND GENERAL ANTHROPOLOGY.

1. On the Relation of the Parish Boundaries in the south-east of England to great Physical Features; particularly to the Chalk Escarpment. W. Topley, Esq., Geological survey.
  2. On Theories regarding Intellect and Instinct, with an attempt to deduce a satisfactory conclusion therefrom. By George Harris, Esq.
  3. On Western Anthropologists and extra-western Communities. By J. Kaines, Esq.
  4. On the Fossil Human Skeleton of Mentone. By M. Moggridge, Esq.
  5. On Rubbings from St. Patrick's Chair, Co. Mayo, Ireland. By R. E. Symmes, Esq.
  6. Strictures on Darwinism: the Substitution of Types. By H. H. Howorth, Esq.
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WEDNESDAY, August 21st.

GENERAL ANTHROPOLOGY.

1. On a Hypogeum in the Western Isles. By A. A. Carmichael, Esq., with Notes by J. F. Campbell, Esq., of Islay.
2. On a Silicified Forest in the Rocky Mountains, with an account of a supposed Fossil Chip. By Professor H. A. Nicholson, M.D.

COLONEL LANE FOX's opening address was divided under three heads, embracing—1. Some remarks on the continuity of culture. 2. On the relative value of certain classes of evidence in tracing the continuity of culture in pre-historic times; and 3. On the defects in the existing machinery of anthropological science, advocating a better organisation of our local and metropolitan societies, with a view to their special and combined action in promoting anthropological research. Canon Greenwell's paper was confined to a description of the round barrows of the district which he has explored during so many years. Inhumation and cremation appear to have been practised contemporaneously in this region, although the former is by far the most common in these Wolds. The one process does not appear to have been older than the other in the round barrows, nor has the difference been one of social rank or sex. Burials by inhumation are invariably contracted, and small holes dug in the natural surface apparently to contain food are not uncommon in connection with these interments. In two hundred and forty-eight interments by inhumation and cremation, thirty-nine were associated with articles of flint, ten with bronze, and three with articles of horn. Out of the same number of burials, only five contained articles of personal decoration, and sixty-nine were associated with pottery. The burials appear to have belonged, for the most part, to people in a humble condition of life, but they had an organised society, possessed domesticated animals, and cultivated grain; they manufactured woollen fabrics, and had some little skill in metallurgy. Their bronze weapons consisted of triangular knife daggers and plain flat celts, both of the simplest form. The round barrows yield both dolichocephalic and brachycephalic skulls, and are attributed by Mr. Greenwell to the early bronze period. The reading of this important and long-expected communication attracted considerable attention, and will form a valuable preface to Mr. Greenwell's more elaborate and detailed work, which is shortly to be published.

The most important point in Mr. Spence Bate's paper consisted in the discovery of an oval object of amber in one of the Dartmoor barrows opened by him, which was at once recognised by the

archæologists present as the pommel of a bronze sword or dagger. It is believed to be unique. Professor Rupert Jones drew attention to some incised marks found upon implements of bone in the caves of Perigord, France, comparing them with similar marks of ownership, or used as tallies, or for gambling, by the North American Indians, Esquimaux, Australians, and others. His paper will be published in the "*Reliquiæ Aquitanicæ*." Lieutenant Cooper King's paper had reference to the discovery of flint flakes on the surface in Wishmore Bottom, near Sandhurst, and to the topographical changes which appear to have taken place since they were deposited.

A report was read by Mr. Boyd Dawkins on the explorations made during the past year in the Victoria Cave by the Settle Cave exploration committee. A cutting was made in a layer of stones near the surface, in which were found several bronze gilt ornaments of Roman workmanship and others which appeared to be Celtic. They were associated with the remains of the Celtic shorthorn, the goat, horse, and pig, and they probably belonged to some Romano-Celtic family which had taken refuge in the cave between the fifth and first quarter of the seventh century, when the kingdom of Strath Clyde was conquered by the Angles. Beneath the Romano-Celtic layer were found pieces of chipped flint and rude bone implements, together with bones of ox and bear. Beneath this again another shaft was sunk, resulting in the discovery of the still older occupation of the cave by hyenas, the broken bones of which showed that they must have been there in considerable numbers. With them were also found the gnawed bones of rhinoceros, cave bear, mammoth, and reindeer. These relics belong to the pleistocene period, and are probably of the same date as the Kent's Hole and Kirkdale caverns.

Mr. Moggridge gave an account of the recently-discovered human skeleton by Dr. Rivière in a cave near Mentone. The skeleton was lying on its left side, in an attitude such as might have been assumed in sleep. It was eight feet beneath the modern floor, and nine feet from the entrance. The body was lying N. and S., with the head to the S. Eye teeth of deer and small shells, both pierced, encircled the skull; possibly they may have ornamented a fillet. In contact with the body flint implements had been placed, and a circle, or rather oval, was formed around by rude stones in juxtaposition. A mass of metallic grain (oxide of iron), four inches long and one inch wide, was found touching the teeth, as if one end had been placed within the lips. The shin bones of this skeleton were platycnemic, like those of the skeletons discovered by Mr. Busk in the caves of Gibraltar. Beyond the fact that it is of the

stone age and associated with deer, no date can be assigned to this skeleton.

Sir Duncan Gibb read two short archæological papers which will probably be submitted to the Institute. Mr. A. A. Carmichael gave a description of an underground dwelling at Druinah-Uamh, in Valaquoie, on the north-west coast of north Uist, one of the Hebrides. The ground plan of this structure was crescentic; a dome-shaped roof was formed by overlapping stones, and there were four recesses in the walls. On the floor were found fragments of broken pottery, antlers of the red deer, and bones of the ox, pig, and goat or sheep; with mussel, limpet, cockle, periwinkle, and a few broken scallop shells. Mr. Campbell, of Islay, also contributed some remarks upon this structure. Professor Nicholson, of Toronto, exhibited to the meeting a silicified chip of wood found in a silicified forest near Pikes Peak, in the neighbourhood of Colorado city, in the Rocky Mountains. The chip appeared to have been cut across the fibres of the wood with an instrument which, it was suggested, could scarcely have been of any other material than iron, and silicified afterwards, but no evidence was offered as to the date of the forest.

In the department of Ethnology and Philology, Dr. Charnock contributed four papers—two on the derivation of local names in Sussex, and two on the gipsies. It is unnecessary to enter into a description of these papers, as they will in all probability be submitted to the Institute. Mr. Evans's paper "On the Alphabet and its Origin" was divided under three heads, relating, 1. To the origin of writing, and the method of its development in different parts of the globe; 2. To the original alphabet from which that in common use amongst us was derived; and 3. To the history and development of that original alphabet. Mr. Evans supposes that the Phœnicians, borrowing the idea from the Egyptians, struck out for themselves a more purely literal, and therefore more useful form of alphabet. Their alphabet, unlike the letters of the Egyptian hieroglyphics, does not appear to consist of merely a few survivors from a whole army of symbols; on the contrary, it seems to present some trace of arrangement, and the symbols representing the letters appear to be grouped in pairs or threes, each consisting of objects in some manner associated with each other. Mr. Hyde Clarke, in a paper on the ethnological and philological relations of the Caucasus, endeavoured to identify the Ude with the ancient Egyptians, the Abkas with the Falasha of the Upper Nile, the Circassians with the Dravidians, and the Georgians with the Caucaso-Thibetans. The Ude and the Abkas he believes to be connected with the statement of Herodotus as to the Egyptian

colony established in Colchis by Sesostris. Mr. Phené, in continuation of a paper read at the previous meeting of the British Association at Edinburgh, contributed some further evidence tending, in his opinion, to confirm the existence of serpent worship in Argyllshire. The Rev. J. C. Atkinson, in further extension of a paper formerly contributed to the Ethnological Society, on the predominating Danish aspect of the local nomenclature of Cleveland, Yorkshire, showed that out of something like two hundred and fifty Cleveland names dating back to mediæval times and earlier, upwards of two hundred and ten, or considerably more than eighty per cent. must be ascribed to Danish as distinguished from an English or an Anglican source.

In a paper on the primitive weapons of ancient India, Sir Walter Elliot described the forms of the weapons in use by the Dravidians and others with whom he had come in contact during his long Indian experience. His researches lend confirmation to the hypothesis formerly suggested by the writer of this Report in two papers on primitive warfare, published in the "*Journal of the Royal United Service Institution*," as to the probable identity of certain weapons in use by the Australians, Dravidians, and ancient Egyptians, and show that these distinct races, which Professor Huxley has traced to the Australioid stock, are singularly alike in some of their arts and warlike contrivances. Professor Rolleston brought before the meeting a large number of detailed measurements of skulls obtained by Canon Greenwell in his excavations. His examination of these skulls had been conducted independently of any knowledge of their archaeological surroundings. Two types of skull, the same as have been described by Dr. Thurnam in his well-known papers, were found in the series submitted to him. Skulls of the dolichocephalic and brachycephalic types were frequently, however, found to bear the same label, and might be presumed, therefore, to have come from the same barrows. If it should turn out to be the fact that these two kinds of skull had been found with the same archaeological surroundings, this would be a different condition of things from that which had been described as existing in the Wiltshire barrows, and would have to be explained either as being the result of an intermixture of the two races peacefully, or as the manifestation of a tendency to variation not unparalleled even in wild tribes. The form of cranium which Retzius had called the common Celtic form was almost entirely absent in this series, as also the form of cranium known as the Borris type. Professor Rolleston also exhibited ten photographs and three skulls of the Jungle Weddo of Ceylon. There is no doubt of the genuineness of the skulls, yet one of the three was as markedly brachycephalic (the cephalic index

being eighty-one) as the others were, and, as Weddo skulls usually are, dolichocephalic. Dr. A. Campbell contributed a paper on the Looshais or Kookees inhabiting the hill tracts of Chittagong. They are described as being fairer in complexion than the people of the plains; their features resemble those of the Malays more than the Tartar-faced people of Manipore, they dry and preserve their dead, have no distinctions of caste, marriage is a civil contract, dissolvable at the will of the parties concerned, and there is no prohibition against the marriage of widows. The men live by hunting and marauding, whilst the cultivation and all the household work is left to the women; they live in log-houses, and know enough of iron-working to make spear-heads and fish-hooks. By a communication from Major Godwin-Austen on the Garos, we learn that these people occupy the extreme western end of the range of hills south of the Brahmaputra and Assam. They do not erect stone monuments, but have a similar custom of setting up posts of wood, and this in the opinion of Major Godwin-Austen has led to the use of the monoliths on the Khāsi Hills, the object of both tribes in setting them up being as a propitiation for good fortune. Mr. R. B. Shaw gave a very interesting account of some religious cairns which are seen throughout the Himalayan region, covered by propitiatory offerings in the form of sticks, to which rags, flags, horse and yaks' tails are attached. The point of most interest in connection with these cairns is the fact that they are now venerated by people of three different races and religions—the Hindus, the Buddhists, and the Mussulmans. They appear to have been originally erected to local deities, and are survivals from a more primitive form of worship which has become partially incorporated with the several religions which have been subsequently introduced into these parts, much in the same manner that in Ireland we see the veneration of holy wells and cairns associated with similar votive offerings tacitly admitted by the priesthood at the present time. Dr. Nicholas, in a paper on the ethnological relations of France and England, advocated the view of the predominance of the Celtic over Teutonic blood in the existing population of both countries, more especially the former. Mr. A. L. Lewis drew the attention of the meeting to the existence of certain curious opinions relative to the Jewish origin of the English nation, pointing out the fallacy of such views. Mr. Topley, in a remarkably original and scientifically-conceived paper on the Origin of Parish Boundaries in the South of England, showed grounds for supposing that the existing boundaries of parishes were based on some earlier and prehistoric divisions of land. The Wealden valleys being at that time covered with dense forest, were scarcely penetrable by the



earliest settlers, who would naturally select for the sites of their encampments the open dry ground near the forest, at the foot of the chalk escarpment, where wood and water were procurable. The open unwooded chalk hills on the other side would form the grazing ground for their cattle; hence the land which became attached to each camp or settlement would only extend a short distance into the forest, but would occupy an extensive tract of country over the hills in the opposite direction. These primitive causes appear to have governed the distribution of land when it became subsequently divided into parishes. It is found that of the parishes around the Wealden border, a hundred and nineteen, conforming to the rule laid down, have their villages at the foot of the slope, close to what was formerly the margin of the forest, whilst their parishes ascend the hills at right angles to the escarpment. On the other hand, the exceptions to the rule, in which the parishes descend from the villages into the Wealden, number only six throughout the whole of this district. In the department of general anthropology, Mr. Kaines read a paper on Western Anthropologists and extra Western Communities, in which he advocated greater toleration towards savages, more especially in regard to their religions, some of which, being well adapted to their civilisation, have a better effect in keeping them in order than the religions introduced amongst them by Europeans. Mr. Wake, in a paper on the Origin of Serpent-Worship, endeavoured to prove that this worship, as a developed religious system, had its origin in Central Asia, the home of the great Scythic stock, from which the civilised races of the historic period sprang, and that the descendants of the legendary founder of that stock, the Adamites, were, in a special sense, serpent-worshippers. Mr. Harris read a paper on Theories Regarding Intellect and Instinct, which led to a lively discussion; and Mr. Howorth contributed a paper on Darwinism, part of which has already been read before the Institute.

Among the Members of the Institute present at the meeting who took part in the discussions were Major Godwin-Austen, Dr. Beddoe, Mr. Bohn, Mr. Brabrook, Dr. A. Campbell, Mr. Charlesworth, Mr. F. Collingwood, Dr. Hooker, Mr. Howorth, Mr. Hyde Clarke, Mr. R. Dunn, Mr. Boyd Dawkins, Mr. E. Grant Duff, Dr. P. M. Duncan, Sir Walter Elliot, Mr. John Evans, Sir Duncan Gibb, Mr. G. Harris, Mr. T. Mc K. Hughes, Dr. R. King, Mr. Kaines, Mr. S. Lee, Mr. Lamprey, Mr. Lewis, Mr. Moggridge, Mr. Clements Markham, Dr. Nicholas, Dr. O'Callaghan, Captain Bedford Pim, Mr. Phené, Mr. Rudler, Professor Rolleston, Mr. A. R. Wallace, and Mr. Wake.

To Mr. F. W. Rudler the meeting was in a special manner indebted for his services as Secretary, as also for the abstracts of



several of the papers, which the authors of them had omitted to send in.

The position of the Anthropological Department in the British Association, affording, as it does, a fair criterion by which to estimate the condition of anthropology in this country, it is desirable, to profit as far as possible by the experience thus afforded, to consider any measures which may appear desirable to promote the interests of this Institution.

Amongst the changes which were this year introduced into the working of the department, the appropriation of a separate day to the discussion of each distinct section of anthropology appears worthy of attention. It was found that those members of the Association who had devoted their special and close attention to a particular branch made a point of attending on the days devoted to their subject. Owing to this cause the discussions were of a more scientific character, and the several questions submitted to the meeting were more closely argued, and with greater regard to the evidence adduced, than on previous occasions. This subject commends itself in a special manner to the notice of the Institute.

Notwithstanding the questions of local and general interest which, on the occasion of the Brighton Meeting, drew special attention to the proceedings of some of the other sections, the ample space devoted by the authorities to our department was filled during the greater part of the meeting and at times crowded, and every day of the week was fully occupied in reading the numerous papers submitted to the department. The popularity of anthropological science, and the crowded audiences which it attracted on this, as on all previous occasions of the meeting of the Association, prove beyond doubt that the Anthropological Institute of Great Britain and Ireland has only to be properly worked in order to become one of the most prosperous societies in this country.

This is not the time to discuss in detail any measures of improvement relating to our own body, but it is worthy of remark that the large attendance of women at the Association meetings of our department is evidence of the intelligent interest which is taken by the sex in anthropological studies. Amongst the numerous papers submitted to the department, only one was rejected as being unfit to be read before ladies. It is without doubt a tendency of progress so to modify the usages of society as to enable women to approach the study of nature in a scientific spirit. There can be no just reason why anthropology should oppose a barrier to this progress. Questions undoubtedly arise, though rarely, which it is not desirable the sexes should discuss in common, and for these provision should be made, but experi-

ence has proved that the total exclusion of women from our meetings is certainly a financial, if not a scientific, blunder.

Of the thirty-three papers read at the meeting, the following may be regarded as a more detailed classification of the several subjects:—Prehistoric archaeology, 13; ethnology, 8; philology, 5; descriptive ethnology, 3; general anthropology, 3; psychology, 1.

As on previous occasions, the largest proportion of the papers was devoted to prehistoric archaeology, which, being the most accessible of the inductive branches of our science, has naturally attracted a full share of the attention of anthropologists. Philology and ethnology were also fully represented. It is perhaps a subject for regret that so few papers should have been devoted to descriptive ethnology. It can hardly be necessary to draw the attention of anthropologists to the importance of more active measures for promoting this branch of study at a time when the manners and customs of uncivilised races are changing with a degree of rapidity unprecedented in the world's history, and when the continued existence of some of these races is becoming a question of only a few years. Nor can it be necessary to insist on the principle that a nation which, from its vast colonial possessions, is placed more continuously in contact with savage races than any other, has special duties imposed on it with respect to this branch of inquiry.

The comparatively feeble attempts of our own department in this direction, must be in part attributed to the insufficiently developed views entertained in some quarters, with regard to the scope and objects of our study as it is now established amongst us, under the really comprehensive title of Anthropology. At the recent meeting, it is known that a much larger amount of valuable information might have been contributed on the subject of savage races by some of the members present; whilst in the geographical department it has been customary to include this branch of our subject amongst the matters discussed. Viewed merely as a question of departments, this subject might not appear entitled to the serious attention we are disposed to claim for it. It is, however, of the first importance that the accounts of aboriginal races, presented by travellers, should be anthropologically as well as geographically investigated. On the other hand, it is equally important that in whatever body the funds necessary for promoting exploration are reposed, the department of descriptive ethnology should receive due attention, and as the means of exploration are at the present time entirely in the hands of geographers, we must be content to look to them, for the present, as our source of supply for this most important branch of our science. The difficulty in this respect will probably not be satisfactorily adjusted until anthropology has been placed on

its proper footing, as a focus for many cognate branches of study which relate to the science of man. That such must eventually be the case, there can be little doubt; and it is to this institution that we ought to look for the accomplishment of this object, when by drawing to our council the most eminent men, and thereby introducing a high standard of public spirit and an absence of schism, we may place Anthropology in a position to claim both financially and intellectually the support which, viewed as a science, it ought long since to have received from the people of this country. Meanwhile, it is satisfactory to observe that the best disposition has been shown on the part of the leading geographers to cooperate with anthropologists in the prosecution of those measures which are necessary to promote anthropological exploration, and at the conclusion of the recent meeting of the Association at Brighton, a joint committee of geographers and anthropologists was appointed to draw up general instructions for travellers, in regard to anthropological investigations.

The following is the resolution adopted by the General Committee:—

“That Colonel Lane Fox, Dr. Beddoe, Mr. Franks, Mr. Francis Galton, Mr. E. W. Brabrook, Sir John Lubbock, Bart., Sir Walter Elliot, Mr. Clements Markham, and Mr. E. B. Tyler be a committee for the purpose of preparing and publishing brief forms of instructions for travellers, ethnologists, and other anthropological observers. That Colonel Lane Fox be the secretary, and that the sum of £25 be placed at their disposal for the purpose.”

This committee has already entered upon its functions, and the two expeditions which have lately left this country for Central Africa, the one by Zanzibar, under the direction of Lieut. Cameron, R.N., and the other by the Congo River, under Lieut. Le Grandy, R.N. (although unfortunately only a few days' notice was given of their intended departure), have been furnished with detailed notes and queries on general anthropology, physical anthropology, religions, myths, customs, language, war-customs, iron manufacture, ornamentation, etc., drawn up by the members of the committee and others who are recognised as authorities in their respective branches of anthropology. Each expedition has also been furnished with a set of M. Broca's tables for estimating the colour of the skin and hair.

An additional sum of £25 was also devoted by the Association, for the purpose of continuing the exploration of the Settle Cave Committee; and Sir John Lubbock having undertaken the charge of the investigations, all possible guarantee is afforded for the success of the undertaking.

At the conclusion of the meeting an excursion was made to

Cissbury, near Worthing, where the British camp, one of the finest in the country, and the pits containing the *débris* of the manufacture of flint implements, were examined and described. The attention of anthropologists has, on a former occasion, been drawn to this locality by communications to the Ethnological Society and Society of Antiquaries.

In concluding this report, I have only to add that it has been drawn up in deference to the wishes of the council of the Institute. I cannot but feel sensible, however, that in so brief a report it has not been possible to do justice to the many valuable papers which were read at the meeting, whilst on the other hand, it is not desirable during the present necessarily limited extent of our publications, to trench more than can be avoided upon the space which our Journal should devote to the production of original matter. (Signed) A. LANE FOX.

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The DIRECTOR proposed a vote of thanks to Colonel Lane Fox for his report, remarking that the Department of Anthropology had been an unusually successful one, and that much credit was due to Colonel Fox for his ability in presiding over it. The suggestions he made would have the best attention of the Council.

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The following paper\* was read.

*On some IMPLEMENTS bearing MARKS referable to OWNERSHIP, TALLIES, and GAMBLING, from the CAVES of DORDOGNE, FRANCE.* By Professor T. RUPERT JONES, F.R.S., F.G.S.

[*Abstract.*]

AMONG the implements of bone, deer-horn, and ivory found by MM. Christy and Lartet in the caves of the Dordogne district, in France, are many bearing more or less definitely designed marks, such as scorings and notches, parallel, crossing, or otherwise arranged, and pittings in a roughly quincuncial order. One specimen in particular exhibits several of these kinds of markings, whether made for a purpose, for ornament, or by trivial whittling. Professor Jones described several implements from the caves exhibiting one or more of these types of marks, and indicated their applicability to either ownership, reckoning by tally, gambling, or mere fancy work. He also suggested that herein we may have some of the earliest examples of magic signs and lucky charms such as the old Norsemen and some archaic peoples are said to have used and feared.

The particular specimen above referred to has a marginal

\* Intended for publication in the "Reliquiæ Aquitanicæ."

crenulation, several sets or groups of parallel notches near the edge, and on both sides quincuncial pittings.

Taking these kinds of markings in order, Professor Rupert Jones compared (first) the cut margin with some African and other specimens that had an analogous crenulation.

Secondly, a knife-like bone implement from the department of the Dordogne, exhibited, beside the edge-marks, superficial parallel scorings. These, as in the former case, may be merely tally marks of events, facts, or actions under certain circumstances. In particular he referred to a carved reindeer antler which had evidently served for a tally stick among the cave-folk of Perigord. He then referred to several specimens from the Dordogne Caves, Heathery Burn, and other sources, bones, and bone implements variously scored with numerical markings.

In the third place allusion was made to many implements from the French caves scored or gashed with lines, parallel, crosswise, or chevron-like, which were very similar to such markings as indicate ownership on the Esquimaux harpoons. All these markings were illustrated by diagrams and by reference to specimens exhibited on the table from Colonel Lane Fox's collection, which comprised African, American, Danish, Australian, and other *incised* tools and weapons.

In addition to the above, Professor Rupert Jones drew attention to rarer specimens bearing combinations of markings, whether quincuncial or otherwise, which seemed to him to be adapted to gaming purposes.

At the same time, several examples were given of instances of what may probably be imperfectly finished ornament or purposeless carving: and in some other cases the regularity was such as almost to lead to a comparison with Runic writings, such as are alluded to in Scandinavian poetry as magic charms on deadly weapons.

The number and great variety of the markings lead to the conclusion that in the vast majority of cases they were not the result of accident or chance, but of intentional workmanship, the uses for which can certainly furnish food for conjecture.

#### DISCUSSION.

Dr. A. CAMPBELL said he felt great diffidence in differing from the author of the paper about the markings, which he supposed to have been made for the purpose of keeping "tallies"; and this applied to the notched implements which were exhibited in illustration of Professor Jones's views. It appeared to him that the notchings must have been made for some other purpose than the temporary one of a "tally." On one of the implements—a sword or knife, which was very neatly finished—there was a continuous and regular line of small notches all



along the edge. Dr. Campbell did not think that a man was likely to notch a sword of this sort—which was probably an heirloom in his family—for the temporary purpose of keeping a “tally.” Among the people of the Himalaya mountains, with whom Dr. Campbell was familiar, the “tally” was in constant use in the occupations of ordinary life. A “sirdar” or head man of coolies kept a “tally” to enable him at the end of the day to give his master the number of men present; so in woodcutting, etc., a man will have a “tally” to show the number of logs delivered, etc., but it is not kept on a sword or other implement, but generally on a piece of stick cut in the jungle, and thrown away when the work is paid for. There are various ways of keeping a “tally”; a long notch may indicate 5, 10, or 20, so 5 notches, with a notch across, may stand for 10 or 20, as the case may be.

Mr. A. W. FRANKS stated that counterparts of the bones with singular markings described by Professor Rupert Jones, have been discovered in the cave explored by the Vicomte de Lastic near Bruniquel (Tarn et Garonne). Besides the harpoon heads with engraved lines and other ornaments, there have been found birds’ bones with scored lines. One of these, now in the British Museum, is  $5\frac{1}{2}$  inches long, and has on it repetitions of a number of lines occurring in sets similarly disposed, and which might well be a kind of numeration. There is also preserved in the British Museum an object of another kind, the use of which it would not be easy to discover had it not been accompanied by a description of its meaning. It is a wooden staff, 3 feet  $4\frac{3}{4}$  inches in length, surmounted by a figure, and covered with designs of the usual New Zealand pattern. Down one side are eighteen projections, of which the fifteenth is inlaid with a piece of green jade. It was obtained in New Zealand by his Excellency Sir George Grey, who states it to record the history of the Ngati-Rangitiki tribe, and to have belonged to a chief named Te-korokai, who used it to aid his memory when recounting the history of the tribe.

Mr. M. J. C. BUCKLEY said tallies or scores for reckoning are still used in the south and south-west of Ireland. He has seen “tallies” employed for marking the number of loads of potatoes, hay, corn, barrels of beer, and “firkins”\* of butter, in the counties of Cork, Waterford, Tipperary, and Carlow. The system of marking is by *fives*. When the scores are equal in playing ball, the local expression in Cork is “all aboard.” The adage “it *tallies* with” something else, is from this fact of the scores on either side of the tally-stick or board being equal. The handles of spades and sticks in Cork and Waterford are often *marked* with notches as in the Australian club exhibited by Colonel Lane Fox. The expression, “I put my *criss-cross* on it,” used by the peasantry, is from this custom, so that the owner being unable to read could always claim his own stick or spade by its marks.

\* A “firkin” of butter is a small oak barrel of about 28lbs. weight, in Cork. It is a corruption of the Flemish word “vierkin” (*vier*, four, and *kin*, little), or small *quarter* barrel. These firkins are all staved and hooped according to certain bye-laws of Cork and Limerick.



The manner of inserting the spade which is in use in the stony districts of the south-west of Ireland is precisely similar to the way in which the so-called bronze "celts" or hatchets of the ancient Irish were fastened to their handles. The name of "Wishmoor," near the site of the presumed lake station treated of by Lieutenant King, seems to come directly from the sound of the Keltic or Gaelic words "uischka möre," or "large drinkable water." The river in Munster called in English the "Blackwater," is in Irish the "Abhainn-mohr" (pronounced "Avonmore") or "great water." Here is the same name and the Keltic-sounding word of "Wishmore" near to it. The words "wish," "ouish," "huish," "ish," "ey," "au," "eu," mark a spot where water ("oua" = wa) is to be found, as in this place.

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The following paper was read by the author :

DISCOVERY of a FLINT IMPLEMENT STATION in WISHMOOR BOTTOM, near SANDHURST. By Lieut. C. COOPER KING, Royal Marine Artillery. Plates xx and xxi.

THE neighbourhood of Sandhurst abounds in traces of early human occupation. The successive races that have, from time to time, inhabited this portion of Hampshire, Berkshire, and Surrey, lying between Guildford and Reading, have each and all left behind them more or less distinct evidences of their residence and existence.

At Aldershot and near Wishmoor large earthen entrenchments, the sites of stores, depôts, or camps, mark the halting places of the Roman legions, or the temporary fortifications whence they over-awed the land. Tumuli, which have been found to contain pottery and other Saxon or British remains, crown many of the isolated hills and spurs projecting from the narrow irregular ranges which intersect the district. Numerous instances again are on record of the discovery of single flakes or implements of flint, worked or bearing other marks of use, on the barren moorlands undisturbed by present cultivation; but except at and near Puttenham, a small village situated south of the chalk ridge of the "Hog's Back," there has not been any large "find" of these interesting relics of primæval races, and certainly no case in which there are such evident traces of actual work and perhaps residence, as in that to which attention is directed.

The geology of the neighbourhood is too well-known to require any very minute description, but it may be advisable to recall generally the nature of the formations there exposed. The area between Aldershot on the south, and Wokingham on the north, is occupied by the sands, clays, and gravels of the

Bagshot series, and it is to the relative positions of these materials that the situation and character of the numerous ranges of low flat-topped hills of most irregular outline, which occupy the country between the various small river lines, are mainly due. These hills are composed chiefly of the Upper Bagshot sands, and to their capping of gravel is to be attributed their resistance to the disintegrating action of rain and weather, and their consequent existence as high land. In the valleys, that of the Blackwater more particularly, the middle beds of green sands and clay make their appearance, and these extend up to the base of the more elevated land, and occupy the lower portions of its valleys and ravines.

Physically, this part of England is varied and picturesque; but owing to the presence of so much sandy unfertile soil, the cultivation is confined generally to the valleys which mark the beds of rivulets and streams; and the hill-tops, surmounted either by sombre forests of pine trees, enlivened here and there by the delicate foliage of the silver birch, or crowned by long sweeps of gorse and heather, form a rich back ground to the more varied vegetation which characterises the thickly populated area occupying the lower land following the course of the Blackwater or the Bourn.

Almost in the very heart of one of these early forests, certainly in what not many years ago was extensively and densely wooded, lies the small valley in which the flints were found. A range of low hills, the summits of which are comparatively level, crosses in a direction nearly north and south the main London-Southampton road, near the village of York Town. From this plateau, and parallel to the highway, run two long irregular spurs, at the extremities of which, where they begin to sink into the lower land, is a small hollow, bounded on three of its sides by the spurs and their subordinate projections, and on the fourth side by a low oval hill; (see *b*, map, pl. xx).

It is necessary to call particular attention to the topographical peculiarities of this hill, in order to give grounds for the theory that has been advanced with regard to the Flint Station. The contour line or level, which in the Ordnance Survey follows the outline of the two spurs at the head of this hollow or minor valley, marks its shape with sufficient distinctness; but in surveying the area the small hill presented a most singular difficulty, for in drawing this portion of the ground, and representing its form by the horizontal lines, or "hachures," commonly used in England for military drawing, it appeared as if the hill had no connection with the contour line, but was completely isolated, and so situated as to give one the impression (entirely on account of its abnormal position with reference to the levels)

that the true contour line must have, at some period, passed not through the valley, as it does now, but outside the small hill, including it in its irregular curve. It was the fact that this hill was and is a puzzle to the draughtsman, that first called attention to the physical peculiarities of the ground.

On further examination, streams were discovered running on either side of the hill, one being much larger than the other, but both proceeding from the higher level; and the hill itself was not merely steeper and higher at the extremity nearest the valley, but had a considerable deposit of superficial gravel round the sides and towards the lower end where it sinks into the plain.

It appeared as if the streamlets had worn away the hill into its present shape, thus depositing the gravel on the lower ground. The summit, again, was crowned with a thin gravel bed, and this lay on the same level as a bed of the same material, which could be traced for a short distance on the spurs enclosing the upper portion of the valley; and hence, if it be assumed that these beds formed portions of the same small gravel beach, surrounding a tiny lake, it could be readily imagined that the hill itself, now worn away on either side by the disintegrating action of the streams, was the remnant of the dam, so to speak, that pent the waters up.

The nature of the bottom of the valley gave some colour to this assumption. Its section some short distance up, towards the higher ground, consisted of—first, a little surface sand and soil, next a thin layer of a stiff yellow clay in large lenticular masses, then of the deep green sand which characterises the Middle Bagshot beds, and finally at a depth of about 3' or 4' a band of white clay. There were many fragments of wood, chiefly birch, in these clays; and in the lower white band especially, but also in the upper layers, were very numerous fragments of reeds and marshy vegetation, giving forth a silty smell. Nearer the little hill before referred to, the upper clay was covered by about 2' of sand, and had this been a veritable lake area, similar conditions would, to some extent, have obtained.

The upper part of the valley is under cultivation; but at the lower part, at the junction of the two streams which drain it, and which now unite to form one running along the northern side of the hill, is a small bare sandy space dotted with clusters of coarse grass and heather. There were traces of an attempt at cultivation at intervals, but they were of a very ill-defined character.

The first discovery of the existence of flint flakes was made by Capt. Richards at the extremity of the valley nearest the hill. Numerous flakes, well-defined and of different sizes, were found scattered closely together on the surface of the ground, and on

further examination, by excavating to the depth of about 1' or 18", a large number of flakes, with several cores, and two implements of palæolithic type, were found.

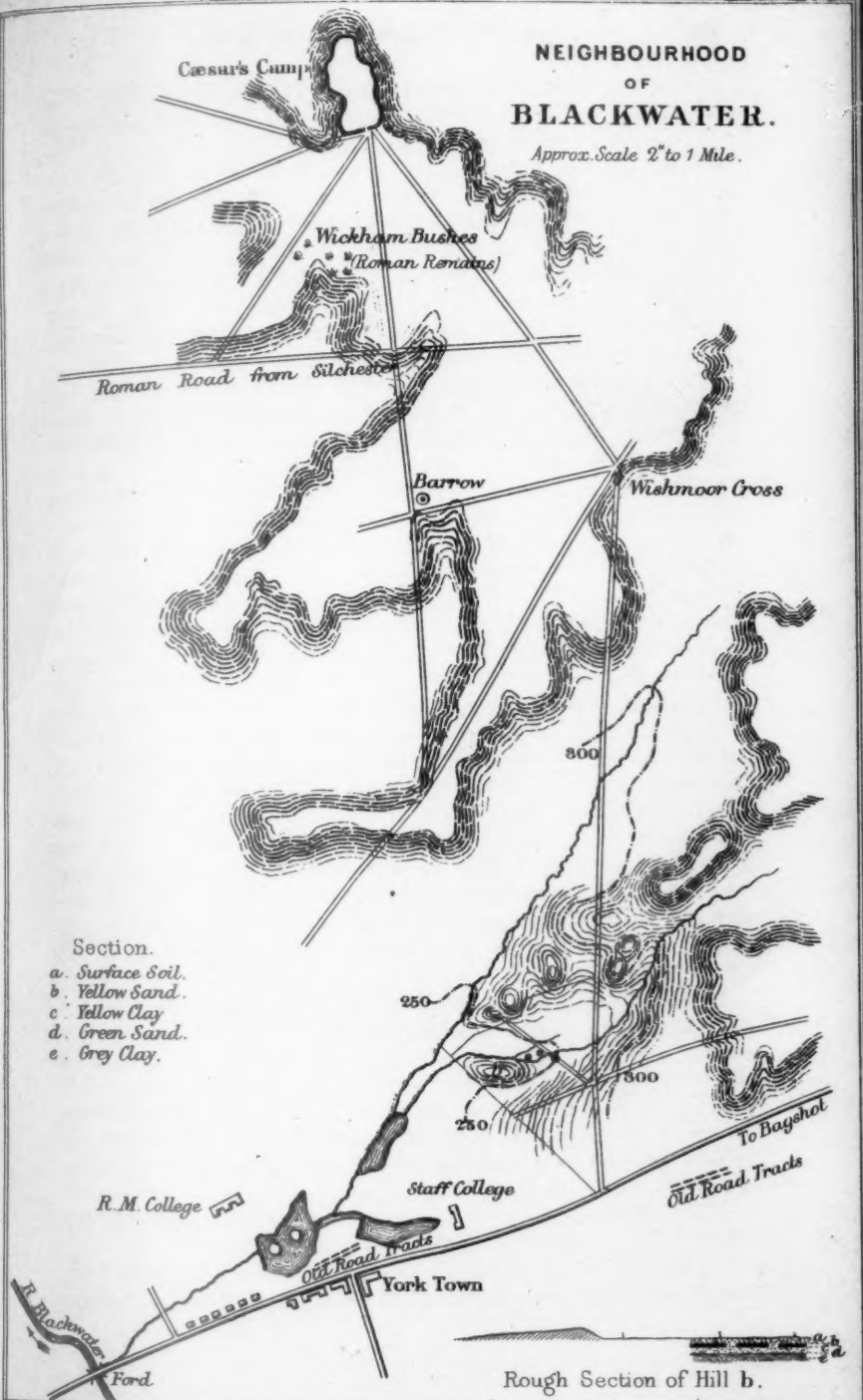
The *flakes* were very varied in shape, many being broad leaf-shaped fragments of the arrow-head size, but the majority were long simple flakes of the usual character, with well-defined lobes of percussion. None seemed to have been worked into small implements, though a number bore marks of usage as side-scrappers. By far the larger number were, of course, merely rough outsiders, but the minute fragments produced in knapping larger flints were extremely numerous.

The *implements*, though undoubtedly of the same age, and made somewhat in the same way, differed materially in their character. One was formed from a long cylindrical flint, one end of which had been left smooth and untouched to form a handle, but the other had been carefully knapped, and the point of a shoe-shaped instrument produced, the lower side of which was flat, and the upper surface somewhat ridged or rounded. The other specimen (pl. xxi) is completely finished from a bright yellow-tinted flint, and is of an oval or shoe-shaped form. The lower surface is nearly flat, this effect being produced by the removal of flakes running along its length; and on the upper side the flakes have been struck from a hog-backed ridge; with the ends symmetrically rounded off. On each side are marks of wear, which may have been caused by use as a kind of heavy scraper, or perhaps from being attached by withes or ligatures to a rod, in much the same way as the blacksmith holds his chisel. The want of wear at the extremities militates against the theory that it was actually used in this manner, but it is possible that it may be the relic of a larger implement which had been worn down and then re-knapped for further service. This may have been the cause of its rejection, as it may not in its altered state have satisfied the workman and been therefore cast aside.

It seems very probable that implements were often thus re-fashioned, for many flakes with clean cut sharp edges were found, the upper surface of which bore the marks of the removal of many chips; and from the small size of the flake these could scarcely have been struck off when in its present shape without great difficulty. If, however, it originally formed part of the surface of a larger implement, it may have been removed during the process of improving or re-shaping the older tool.

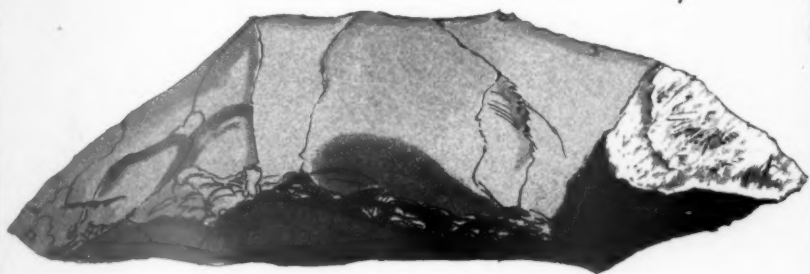
The *cores* were numerous and frequently very small, evidently having been merely used to produce side-scrappers.

The area in which this set of relics occurred was very limited, though in it they were numerous; but starting from the point









TWO VIEWS  
OF A  
FLINT IMPLEMENT FROM WISHMOOR, SURREY.  
(*Nat. Size*)



where they seemed most abundant in any diverging direction the traces were soon lost, and it was evident that the chips were almost entirely confined to one spot. Not even a chip, barely a single pebble, could be found in the sand beyond this apparent centre of work; and though a most careful search was made, it was remarkable how singularly rare, comparatively, were even fragments of flint or gravel, and for some time it was considered that the area had been worked out.

A short time after this conclusion had been arrived at, and at a point about a hundred yards further up the valley, at the beginning of the cultivation, there was again a discovery of flakes, but these, though very definite in shape, were generally broken in two, and a quantity of fragments, of a triangular section, showed how the plough and spade had been the means of destroying many beautifully definite specimens. Here, again, the surface discovery was very limited, and even that eventually made below the surface. Beyond a small, nearly circular space there was not a single flake, though the ground was most diligently examined; but on excavating, flakes and a large number of cores were immediately found either resting on the upper layer of clay, or between it and the surface. The larger number, however, rested on or near this yellow clay. As in the previous instance, the sands and clay were singularly free from gravel or stones, and nearly every fragment of flint bore traces of intentional fracture.

Going still further up the valley for about one hundred yards, and in a portion of land that had been much longer under cultivation, and hence much more disturbed, two flakes were found, and a magnificent core of black flint, from which long well-shaped flakes had been struck on all sides. As it was difficult to make a minute search, no further discovery was effected, but the surface was carefully searched towards the other station without finding a single fragment of flint that had marks of intentional fracture.

There was but one more relic found, and that was a very perfect circular scraper about  $2\frac{1}{2}$  or 3 inches in diameter, much worn at the edges, and with nearly flat sides. It was a completely isolated discovery, nothing being found near it: and it lay on the surface of the steeper slope of the small oval hill that closes the valley.

In considering the history of the valley with the light thrown on it by the singular isolation of the groups of flakes, and further by the peculiar nature both of its form and of its bottom, it becomes a most interesting problem to account for its existence in its present shape.

But a short distance south of it, and parallel to the main

London road, are numerous deep ruts, tolerably regular, apparently converging on the ford of the Blackwater, situated close to the bridge, at the village of that name. The stream, though narrow, has a very soft muddy bottom with low rotten banks, and a depth of water varying from 3 to 6 feet, and hence it is possible that even in early times communication between the sides of the river was effected at the fords which exist at several points along its course, and that, as Professor Rupert Jones has suggested, these tracks or ruts may be the traces of the old roads.

The same considerations which lead to the selection of certain lines as arteries of traffic apply with equal force at all periods of history. Thus aboriginal races would choose the easiest or most direct route between points occupied as settlements, and as these became more fully inhabited and took the character of towns or cities the old routes would still probably be utilised, even if more numerous roads were constructed. It is perfectly allowable, therefore, to make such an assumption. The ford doubtless existed at very early periods, and would form a natural point of passage; and even as in the present day the principal highway traverses the stream at Blackwater, so in all probability the nomad tribes of early days chose this point for the same purpose, and their tracks through the forest-land may be indicated by the ruts in question.

If such be the case, the "Flint Station" we have examined might well be one of the halting-places of an aboriginal race. Not far from the line of inter-communication, concealed both by forests and by the undulations of the ground, in the immediate neighbourhood of that great desideratum—a constant supply of fresh water—travellers would have been safe from observation in their camp and at the same time be near the road. But in this case the question naturally arises, Why was not the slope of a hill or even a more secluded valley, of which there are many within a short distance, chosen for a village or a camp? The low-lying ground of the valley must have been at least more damp and marshy than it is now, and even for the slight security from observation afforded by its sheltered position, it is scarcely likely that such a spot would be selected as a resting-place. Human nature probably varies little from time to time, and even the flint-knappers of olden days were doubtless not inattentive to personal comfort.

One point of interest may well be mentioned here with regard to the flint from which the implements were made. The material does not seem to be of local production. The gravel pits near rarely produce flints of such close texture and size as those which yielded the fragments discovered; and it is

further a great question whether the flints from the gravels are susceptible of being readily worked. Had they been collected from the neighbourhood there would have been more untouched specimens lying about, for the short distance from which they might be obtained would admit of the transport of a large number of stones that appeared externally suited for working; and of these the best only would be used, leaving untouched those that, on closer examination, were useless. Hence it may be reasonably advanced that either carefully selected flints were habitually carried by the workers to be converted into implements at the camps, or that implements blunted or broken by use were re-converted at these places. The writer has in vain endeavoured to produce flakes from the local flints; and has failed because of their irregular texture: freshly dry flints from the Chalk are, however, very susceptible of knapping.

Let us turn again to the consideration of the valley and examine the nature of the terrain. A constantly flowing stream, the presence of gravel round the lip, so to speak, of the hollow, the singular position and shape of the small hill, must all have a meaning if we could read it. From the presence of the flakes on or near the clay, it follows that this substance was uncovered, or nearly so, when the flakes, etc., were deposited. The isolation of the groups, and their distance apart, should also be considered; for if the valley had been in its present condition when occupied by the flint-knappers, one would have expected to find the remains more generally distributed over its surface.

Viewing these conditions, a rather startling theory, but one at the same time which seems to satisfy the requirements of the case, has been advanced. May not this have been a small lake-area at the period of its occupation by an aboriginal race, and hence may not the small groups of flints be the sole remnants of very small lake-dwellings? It may be justly remarked, in opposition to this theory, that there are no traces of piles, stones, or even fascines, but these may have been removed or destroyed as the small hill wore away. A similar result would have occurred had the substructure been either a floating raft or a mere pile of bundles of brushwood; and in this case, moreover, the materials would have been washed away or have dropped into decay.

Protection from a sudden assault, and concealment from passers by, would both be gained by establishing the temporary settlement within the lake-area, and communication could have been effected with the shore by raft, pier, or coracle. Far-fetched as such an assumption appears, it is difficult to account in any other way for the presence of flint implements in a marshy valley of such a peculiar character as that referred to. The area

has not been yet thoroughly examined, for the group of flakes nearest the hill is the only one that has been apparently worked out; but even with the scanty information that has been gathered with reference to it, sufficient has been discovered to render the "Flint Station" near Sandhurst of considerable interest, and one that may at a future time tend to throw further light on the habits and customs of those primeval races of whose history so little is known, and the traces of whose existence are often so obscure.

#### DISCUSSION.

Professor RUPERT JONES had much pleasure in corroborating Lieutenant King's account of the topographical features of the finding-place of the flint implements, and the condition of the valley bottom where they were embedded. Though now drained and partially cultivated, this portion of Wishmoor Bottom must at no distant period have been a marsh and probably a lake. In some cases, perhaps, a local sand flat may have existed through which the stone implements may have sunk after having been left on its surface. Professor Jones intimated that the locality was well worthy of a visit, and the scientific visitors would be welcomed by Lieutenant King and himself.

The Director read a letter from the secretary of the Society of Antiquaries, inviting the members of the Institute to hear a paper by the Rev. W. C. Lukis, of that Society, on the 9th. The thanks of the members present were voted to the Council of that Society, and the meeting separated.

DECEMBER 17TH, 1872.

DR. R. S. CHARNOCK, *Vice-President, in the Chair.*

THE Minutes of the previous Meeting were read and confirmed.

The Rev. THOMAS FELTON FALKNER, B.A., was elected a Member and a Local Secretary for Colombo, Ceylon.

The following presents were announced, and the thanks of the meeting voted to the respective donors:—

#### FOR THE LIBRARY.

From the EDITOR.—The Spiritualist, Nos. 1, 2, 3, New Series.

From the EDITOR.—The Food Journal for December, 1872.

From the SOCIETY.—Proceedings of the Royal Geographical Society, vol. xvi, No. 3. President's Address, ditto, 1872.



From the EDITOR.—*Mittheilungen der Anthropologischen Gesellschaft in Wien*, 1872.

From the SOCIETY.—*Jahrbuch der K. K. Geologischen Reichsanstalt*, vol. xxii, No. 3, 1872; *Verhandlungen ditto*, 1872.

From the EDITOR.—*Nature* (to date).

From the EDITOR.—*La Revue Scientifique*, Nos. 22-26.

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The following paper was read by the author:

*THE ORIGIN OF SERPENT-WORSHIP.* By C. STANILAND WAKE, M.A.I.

THE subject proposed to be discussed in the present paper is one of the most fascinating that can engage the attention of anthropologists. It is remarkable, however, that although so much has been written in relation to it, we are still almost in the dark as to the origin of the superstition in question. The student of mythology knows that certain ideas were associated by the peoples of antiquity with the serpent, and that it was the favourite symbol of particular deities; but why that animal rather than any other was chosen for the purpose is yet uncertain. The facts being well known, however, I shall dwell on them only so far as may be necessary to support the conclusions based upon them.

We are indebted to Mr. Fergusson for bringing together a large array of facts, showing the extraordinary range which serpent worship had among ancient nations. It is true that he supposes it not to have been adopted by any nation belonging to the Semitic or Aryan stock; the serpent-worship of India and Greece originating, as he believes, with older peoples. However this may be, the superstition was certainly not unknown to either Aryans or Semites. The brazen serpent of the Hebrew exodus was destroyed in the reign of Hezekiah, owing to the idolatry to which it gave rise. In the mythology of the Chaldeans, from whom the Assyrians seem to have sprung, the serpent occupied a most important position. Among the allied Phœnicians and Egyptians it was one of the most divine symbols. In Greece, Hercules was said "to have been the progenitor of the whole race of serpent-worshipping Scythians, through his intercourse with the serpent Echidna"; and when Minerva planted the sacred olive on the Acropolis of Athens, she placed it under the care of the serpent-deity Erechthonios. As to the Latins, Mr. Fergusson remarks that "Ovid's 'Metamorphoses' are full of passages referring to the important part which the serpent performed in all the traditions of classic

mythology." The superstitions connected with that animal are supposed not to have existed among the ancient Gauls and Germans; but this is extremely improbable, considering that it appears to have been known to the British Celts and to the Gothic inhabitants of Scandinavia. In eastern Europe there is no doubt that the serpent superstition was anciently prevalent, and Mr. Fergusson refers to evidence proving that "both trees and serpents were worshipped by the peasantry in Esthonia and Finland within the limits of the present century, and even with all the characteristics possessed by the old faith when we first become acquainted with it."

The serpent entered largely into the mythology of the ancient Persians, as it does into that of the Hindus. In India it is associated with both Sivaism and Vishnuism, although its actual worship perhaps belonged rather to the aboriginal tribes among whom Buddhism is thought by recent writers to have originated. The modern home of the superstition, however, is western Africa, where the serpent is not merely considered sacred, but is actually worshipped as divine. On the other side of the Indian Ocean traces of the same superstition are met with among the peoples of the Indian islands and of Polynesia, and also in China. The evidences of serpent-worship on the American continent have long engaged the attention of archaeologists, who have found it to be almost universal, under one form or another, among the aboriginal tribes. That animal was sculptured on the temples of Mexico and Peru, and its form is said by Mr. Squier to be of frequent occurrence among the mounds of Wisconsin. The most remarkable of the symbolic earthworks of North America is the great serpent mound of Adam's county, Ohio, the convolutions of which extend to a length of 1000 feet. At the Edinburgh meeting of the British Association, in 1871, Mr. Phené gave an account of his discovery in Argyllshire of a similar mound several hundred feet long, and about fifteen feet high by thirty feet broad, tapering gradually to the tail, the head being surmounted by a circular cairn, which he supposes to answer to the solar disc above the head of the Egyptian uræus, the position of which, with head erect, answers to the form of the Oban serpent-mound. This discovery is of great interest, and its author is probably justified in assuming that the mound was connected with serpent-worship. I may remark, in evidence of the existence of such structures in other parts of the old world, that the hero of one of the Yaçnas of the Zend Avesta is made to rest on what he thinks is a bank, but which he finds to be a great green snake, doubtless a serpent mound. Another ancient reference to these structures is made by Iphicrates, who, according to Bryant, "related that

in Mauritania there were dragons of such extent, that grass grew upon their backs."

Let us now see what ideas have been associated with the serpent by various peoples. Mr. Fergusson mentions the curious fact that "the chief characteristic of the serpents throughout the East in all ages seems to have been their power over the wind and rain." According to Colonel Meadows Taylor, in the Indian Deccan, at the present day, offerings are made to the village divinities (of whom the nâg, or snake, is always one) at spring time and harvest for rain or fine weather, and also in time of cholera or other diseases or pestilence. So, among the Chinese, the dragon is regarded as the giver of rain, and in time of drought offerings are made to it. In the spring and fall of the year it is one of the objects worshipped, by command of the Emperor, by certain mandarins. The Chinese notion of the serpent or dragon dwelling above the clouds in spring to give rain reminds us of the Aryan myth of Vritra, or Ahi, the throttling snake, or dragon with three heads, who hides away the rain-clouds, but who is slain by Indra, the beneficent giver of rain. "Whenever," says Mr. Cox, "the rain is shut up in the clouds, the dark power is in revolt against Dyaus and Indra. In the rumblings of the thunder, while the drought still sucks out the life of the earth, are heard the mutterings of their hateful enemy. In the lightning flashes which precede the outburst of the pent-up waters are seen the irresistible spears of the god, who is attacking the throttling serpent in his den; and in the serene heaven which shone out when the deluging clouds are passed away, men beheld the face of the mighty deity who was their friend." Mr. Cox elsewhere remarks that Vritra, "the enemy of Indra, reappears in all the dragons, snakes, or worms slain by all the heroes of Aryan mythology."

Whether the great serpent be the giver or the storer of rain, the Aryans, like all eastern peoples, suppose it to have power over the clouds. This, however, is only one of its attributes. It is thought to have power over the wind as well as the rain, and this also is confirmed by reference to Aryan mythology. Mr. Cox has well shown that Hermes is "the air in motion, or wind, varying in degree from the soft breath of a summer breeze to the rage of the growing hurricane." In these more violent moods he is represented by the Maruts, the "crushers" or "grinders," who are also the children of Rudra, the "Father of the Winds," and himself the "wielder of the thunderbolt" and the "mightiest of the mighty." Rudra is also "the robber, the cheat, the deceiver, the master thief," and in this character both he and Hermes agree with the cloud-thief Vritra.

Notwithstanding the fact that in the Mahâbharâta, Rudra,

like Hercules, is described as the "destroyer of serpents," he is in the same poem identified with Mahadeva, and hence he is evidently the same as Siva, who has the title of King of Serpents. The primitive character of Siva, as the Vedic Rudra, is now almost lost, but the identity of the two deities may be supported by reference to an incident related in the myth of Hermes and Apollo. It is said that, in return for the sweet-sounding lyre, Apollo gave to Hermes the magical "three-leaved rod of wealth and happiness." Sometimes this rod was entwined with serpents instead of fillets, and there is no difficulty in recognising in it the well-known emblem of Siva, which also is sometimes encircled by serpents. It can be shown that the Hindu deity is a form of Saturn, one of the Semitic names for whom was Set or Seth. It was the serpent-symbol of this God\* which was said to have been elevated in the wilderness for the healing of the people bitten by serpents, and curiously enough Rudra (Siva) was called not only the *bountiful*, the *strong*, but the *healer*. The later Egyptian title of the god Set was Typhon, of whom Mr. Bréal says that "Typhon is the monster who obscures the heaven, a sort of Greek Vritra." The myth of Indra and Vritra is reproduced in Latin mythology as that of Hercules and Cæcus. Cæcus also is analogous to Typhon, and as the former is supposed to have taken his name from, or given it to, a certain wind which had the power of clothing itself with clouds, so the latter bore the same name as a very destructive wind which was much dreaded by the Phœnicians and Egyptians. Moreover, the name Typhon was given by the Egyptians to anything tempestuous, and hence to the ocean; and in Hebrew the allied word "Suph" denotes a "whirlwind." There is another point of contact, however, between Siva and the god Set or Typhon, who was known to the Egyptians also as the serpent Aphôphis, or the giant. An ancient writer states that one of the names of El, or Chronos, was Typhon, and the serpent and pillar symbols of the Phœnician deity confirm the identification between Set or Saturn, and the Siva of the Hindu Pantheon.

One of the leading ideas connected with the serpent was, as we have seen, its power over the rain, but another equally influential was its connection with health. Mr. Fergusson remarks that "when we first meet with serpent-worship, either in the wilderness of Sinai, the groves of Epidaurus, or in the Sarmatian huts, the serpent is always the Agathodæmon, the bringer of health and good fortune."† The Agathodæmon, which in

\* Theodoret did not distinguish between an Egyptian sect called *Sethians* and the Gnostic *Ophites* or serpent-worshippers.

† The heavenly serpent, *Danh*, of the Dahomans, is said by Captain Burton to be the god of wealth. "His earthly representative is esteemed the

ancient Egypt presided over the affairs of men as the guardian spirit of their houses,\* was the Asp of Ranno, the snake-headed goddess who is represented as nursing the young princes. That the idea of health was intimately associated with the serpent is shown by the crown formed of the asp, or sacred *Thermuthis*, having been given particularly to Isis, a goddess of life and healing. It was also the symbol of other deities with the like attributes. Thus on a papyri it encircles the figure of Harpocrates, who was identified with the serpent god *Æsculapius*; while not only was a great serpent kept alive in the temple of Serapis, but on later monuments this deity is represented by a great serpent, with or without a human head. Sanchoniathon says of that animal—"It is long-lived, and has the quality not only of putting off its old age and assuming a second youth, but of receiving at the same time an augmentation of its size and strength." The serpent, therefore, was a fit emblem of Rudra "the healer"; and the gift which Apollo presented to Mercury could be entwined by no more appropriate object than the animal which was supposed to be able to give the health without which even Mercury's magic-staff could not confer wealth and happiness. It is remarkable that a Moslem saint of Upper Egypt is still thought to appear under the form of a serpent, and to cure the diseases which afflict the pilgrims to his shrine.

Ramahavaly, one of the four national idols of the Madacasses, bears a curious analogy to the serpent gods of wisdom and healing. One of his titles is *Rabiby*, signifying "animal," and denoting "the god of beasts"; and his emissaries are the serpents which abide in Madagascar, and are looked upon with superstitious fear by the inhabitants. Ramahavaly is, moreover, regarded as the Physician of Imerina, and is thought to preserve from, or expel, epidemic diseases. Mr. Ellis says that he is sometimes described "as god, sacred, powerful, and almighty; who kills and makes alive; who heals the sick, and prevents diseases and pestilence; who can cause thunder and lightning to strike their victims or prevent their fatality; can cause rain in abundance when wanted, or can withhold it so as to ruin the crops of rice. He is also celebrated for his knowledge of the past and future, and for his capacity of discovering whatever is hidden or concealed."

It is probable that the association with the serpent of the idea of healing arose from the still earlier recognition of that animal

supreme bliss and general good." The Slavonian Morlacchi still consider that the sight of a snake crossing the road is an omen of good fortune.—Wilkinson's "Dalmatia and Montenegro," vol. ii, p. 160.

\* Mr. Lane states that each quarter of Cairo is supposed to have its guardian genius, or agatho-dæmon, in the form of a serpent.—Vol. i, p. 289.



as a symbol of life. I have already referred to the representations in the Egyptian temples of the young princes being nursed by a woman having the head of an asp. It is interesting to find that in India at the present day serpent-worship is expressly resorted to on behalf of children, and "the first hair of a child which is shaved off when it has passed teething and other infantine ailments is frequently dedicated to a serpent." This animal in both cases is treated as the guardian of life, and therefore the crown given to Egyptian sovereigns and divinities was very properly formed of the asp of Rânno. Another snake-headed Egyptian goddess has the name *Hih* or *Hoh*, and Sir Gardner Wilkinson mentions that the Coptic word *Hof* signifies the viper, analogous to the *hye* of the Arabs. The Arabic word *hiya*, indeed, means both life and a serpent. This connection is supported by the association, already pointed out, between the serpent and the gods of the life-giving wind, and by the fact that these also possess the pillar symbol of life. This belongs as well to Siva the destroyer, the preserver, and the creator, as to Set or Saturn, to Thoth-Hermes, and El or Chronos. Both the serpent and the pillar were assigned also to many of the personifications of the sun, the deified source of earthly life. Probably the well-known figure representing the serpent with its tail in its mouth, was intended to symbolise endless life rather than eternity, an idea which does not appear to have been associated with that animal by the Egyptians. Agreeably with this view, Horapollon affirms that Kneph-Agathodæmon denoted immortality.

One of the best-known attributes of the serpent is wisdom. The Hebrew tradition of the fall speaks of that animal as the most subtle of the beasts of the field; and the founder of Christianity tells his disciples to be as wise as serpents, though as harmless as doves. Among the ancients the serpent was consulted as an oracle, and Maury points out that it played an important part in the life of several celebrated Greek diviners in connection with the knowledge of the language of birds, which many of the ancients believed to be the souls of the dead. The serpent was associated with Apollo and Athené, the Grecian deities of wisdom, as well as with the Egyptian Kneph,\* the ram-headed god from whom the Gnostics are sometimes said to have derived their idea of the *Sophia*. This personification of divine wisdom is undoubtedly represented on Gnostic gems under the form of the serpent. In Hindu mythology there is the same association between that animal and the idea of wisdom. Siva, as Sambhu, is the patron of the Brâh-

\* Warburton supposes that the worship of the One God Kneph, was changed into that of the dragon or winged-serpent Knuphis.



manic order, and, as shown by his being three-eyed, is essentially a god possessing high intellectual attributes. Vishnu also is a god of wisdom, but of the somewhat lower type which is distinctive of the worshippers of truth under its feminine aspect. The connection between wisdom and the serpent is best seen, however, in the Hindu legends as to the Nagas. Mr. Fergusson remarks that "the Naga appears everywhere in Vaishnava tradition. There is no more common representation of Vishnu\* than as reposing on the Sesha, the celestial seven-headed snake, contemplating the creation of the world. It was by his assistance that the ocean was churned and Amrita produced. He everywhere spreads his protecting hood over the god or his avatars; and in all instances it is the seven-headed heavenly Naga, not the earthly cobra of Siva." The former animal, no doubt, is especially symbolical of wisdom, and it is probably owing to his intellectual attributes rather than to his destructive or creative power that Siva is sometimes styled the King of Serpents. The Upanishads refer to the science of serpents, by which is meant the wisdom of the mysterious Nagas who, according to Buddhistic legend, reside under Mount Méru, and in the waters of the terrestrial world. One of the sacred books of the Tibetan Buddhists is fabled to have been received from the Nagas, who, says Schlagentweit, are "fabulous creatures of the nature of serpents, who occupy a place among the beings superior to man, and are regarded as protectors of the law of the Buddha. To these spiritual beings Sâkyamuni is said to have taught a more philosophical religious system than to men, who were not sufficiently advanced to understand it at the time of his appearance." So far as this has any historical basis, it can mean only that Gautama taught his most secret doctrines to the Nagas, or aboriginal serpent-worshippers, who were the first to accept his teaching, and whose religious ideas had probably much in common with those of Gautama himself. Mr. Fergusson refers to the fact that a king of the Naga race was reigning in Magadha when Buddha was born in 623 B.C.; and he adds that the dissemination of his religion "is wholly due to the accident of its having been adopted by the low caste kings of Magadha, and to its having been elevated by one of them to the rank of the religion of the state." It would appear, indeed, that according to a Hindu legend, Gautama himself had a serpent lineage.

The "serpent-science" of Hindu legend has a curious parallel in Phœnician mythology. The invention of the Phœnician written character is referred to the god Taaüt or Thoth, whose snake-symbol bears his name Têt, and is used to represent the ninth letter of the alphabet (*teta*), which in the oldest Phœnician

\* Vishnu is often identified with Kneph.

character has the form of the snake curling itself up. Philo thus explains the form of the letter *theta*, and that the god from whom it took its name was designated by the Egyptians as a serpent curled up, with its head turned inwards. Philo adds that the letters of the Phœnician alphabet "are those formed by means of serpents; afterwards, when they built temples, they assigned them a place in the adytums, instituted various ceremonies and solemnities in honour of them, and adored them as the supreme gods, the rulers of the universe." Bunsen thinks the sense of this passage is "that the forms and movements of serpents were employed in the invention of the oldest letters, which represent the gods." He says, however, that "the alphabet does not tally at all with the Phœnician names," and the explanation given by Philo, although curious as showing the ideas anciently associated with the serpent, is reliable only so far as it confirms the connection between that animal and the inventor of the written characters. According to another tradition, the ancient theology of Egypt was said to have been given by the Agathodæmon, who was the benefactor of all mankind.

The account given of the serpent by Sanchoniathon, as cited by Eusebius, is worth repetition as showing the peculiar notions anciently current in connection with that animal. The Phœnician writer says: "Tautus first attributed something of the divine nature to the serpent and the serpent tribe, in which he was followed by the Phœnicians and Egyptians; for this animal was esteemed by him to be the most inspired of all the reptiles, and of a fiery nature, inasmuch as it exhibits an incredible celerity, moving by its spirit without either hands or feet, or any of those external members by which other animals effect their motion, and in its progress it assumes a variety of forms, moving in a spiral course, and darting forwards with whatever degree of swiftness it pleases. It is, moreover, long-lived, and has the quality not only of putting off its old age, and assuming a second youth, but of receiving at the same time an augmentation of its size and strength, and when it has fulfilled the appointed measure of its existence it consumes itself, as Tautus has laid down in the sacred books; upon which account this animal is introduced in the sacred rites and mysteries." In India at the present day some Brahmans always keep the skin of a nâg, or snake, in one of their sacred books, probably from some idea connected with the casting by the serpent of its skin referred to in the preceding passage.

We have now seen that the serpent was anciently the symbol of wisdom, life, and healing, and also that it was thought to have power over the wind and rain. This last attribute is easily understood when the importance of rain in the east is

considered, and the ideas associated by the ancients with the air and moisture are remembered. The Hebrew tradition which speaks of the creative spirit moving over the face of the waters embodies those ideas, according to which the water contains the elements of life and the wind is the vivifying principle. The attribute of wisdom cannot so easily be connected with that of life. The power of healing is certainly an evidence of the possession of wisdom,\* but as it is only one phase of it, probably the latter attribute was antecedent to the former, or at least it may have had an independent origin. What this origin was may perhaps be explained by reference to certain other ideas very generally entertained in relation to the serpent. Among various African tribes this animal is viewed with great veneration, under the belief that it is often the re-embodiment of a deceased ancestor. This notion appears to be prevalent also among the Hindus, who, like the Kafirs, will never kill a serpent, although it is usually regarded with more dislike than veneration. Mr. Squier remarks that "many of the North American tribes entertain a superstitious regard for serpents, and particularly for the rattlesnake. Though always avoiding they never destroy it, 'lest,' says Barham, 'the spirit of the reptile should excite its kindred to revenge.'" Mr. Squier adds that, "according to Adair, this fear was not unmingled with veneration. Charlevoix states that the Natchez had the figure of a rattlesnake, carved from wood, placed among other objects upon the altar of their temple, to which they paid great honour. Heckwelder relates that the Linni Linape called the rattlesnake 'grandfather,' and would on no account allow it to be destroyed. Hemy states that the Indians around Lake Huron had a similar superstition, and also designated the rattlesnake as their 'grandfather.' He also mentions instances in which offerings of tobacco were made to it, and its parental care solicited for the party performing the sacrifice. Carver also mentions an instance of similar regard on the part of a Menominee Indian, who carried a rattlesnake constantly with him, 'treating it as a deity, and calling it his great father.'"†

The most curious notion, however, is that of the Mexicans, who always represented the first woman, whose name was translated by the old Spanish writers "the woman of our flesh," as accompanied by a great male serpent. This serpent is the sun-god *Tonacatl-coatl*, the principal deity of the Mexican pantheon,

\* According to Gaelic and Germanic folklore, the white snake when boiled has the faculty of conferring medicinal wisdom. The white snake is venerated as the king of serpents by the Scottish Highlanders as by certain Arab tribes, and it would appear also by the Singhalese of Ceylon.

† The snake is one of the Indian tribal *totems*.

and his female companion, the goddess mother of mankind, has the title *cihua-cohuatl*, which signifies "woman of the serpent." With the Peruvians, also, the principal deity was the serpent-sun, whose wife, the female serpent, gave birth to a boy and a girl from whom all mankind were said to be descended. It is remarkable that the serpent origin thus ascribed to the human race is not confined to the aborigines of America. According to Herodotus, the primeval mother of the Scyths was a monster, half woman and half serpent. This reminds us of the serpent parentage ascribed to various personages of classical antiquity. Among the Semites, Zohak, the traditional Arabian conqueror of Central Asia, is represented as having two snakes growing at his back; and Mr. Bruce mentions that the line of the Abyssinian kings begins with "The Serpent," *Arwe*, who is said to have reigned at Axum for 400 years, showing that the royal descent was traced from this animal. From the position assigned to the dragon in China, it probably was formerly thought to stand in a similar relation to the Emperor, of whom it is the special symbol.

The facts cited prove that the serpent superstition is intimately connected with ancestor worship, probably originating among uncultured tribes who, struck by the noiseless movement and the activity of the serpent, combined with its peculiar gaze and marvellous power of fascination, viewed it as a spirit embodiment. As such, it would be supposed to have the superior wisdom and power ascribed to the denizens of the invisible world, and from this would originate also the ascription to it of the power over life and health, and over the moisture on which those benefits are dependent. The serpent-spirit may, however, have made its appearance for a good or a bad purpose, to confer a benefit or to inflict punishment for the misdeeds of the living. The notion of there being good and evil serpent-spirits would thus naturally arise. Among ancestor-worshipping peoples, however, the serpent would be viewed as a good being who busied himself about the interests of the tribe to which he had once belonged. When the simple idea of a spirit ancestor was transformed into that of the Great Spirit, the father of the race, the attributes of the serpent would be enlarged. The common ancestor would be relegated to the heavens, and that which was necessary to the life and well-being of his people would be supposed to be under his care. Hence the great serpent was thought to have power over the rain and the hurricane, with the latter of which he was probably often identified.

When the serpent was thus transferred to the atmosphere, and the superstition lost its simple character as a phase of ancestor worship, its most natural association would be with the solar

cult. It is not surprising, therefore, to find that *Quetzalcoatl*, the divine benefactor of the Mexicans, was an incarnation of the serpent-sun *Tonacatlcoatl*, who thus became the great father, as the female serpent *Cihuacoatl* was the great mother, of the human race. It is an interesting enquiry how far the sun-gods of other peoples partook of this double character. Bunsen has a remarkable passage bearing on the serpent nature of those deities. He says that "Esmun-Esculapius is strictly a Phœnician god. He was especially worshipped at Berytus. At Carthage he was called the highest god, together with Astarte and Hercules. At Babylon, according to the above genealogy of Bel, Apollo corresponded to him. As the snake-god he must actually be Hermes, in Phœnician Têt, Taautes. . . . In an earlier stage of kosmogonical consciousness he is Agathodæmon-Sôs, whom Lepsius has shown to be the third god in the first order of the Egyptian Pantheon." The serpent deity who was thus known under so many forms was none other than the sun-god Set or Saturn, who has already been identified with Siva and other deities having the attributes usually ascribed to the serpent. Bunsen asserts that Set is common to all the Semites and Chaldæans, as he was to the Egyptians, but that "his supposed identity with Saturn is not so old as his identity with the sun-god, as Sirius (Sôthis), because the sun has the greatest power when it is in Sirius." Elsewhere the same writer says that "the Oriento-Egyptian conception of Typhon-Set was that of a drying-up parching heat. Set is considered as the sun-god when he has reached his zenith, the god of the summer sun."

The solar character of the serpent-god appears therefore to be placed beyond doubt. But what was the relation in which he was supposed to stand to the human race? Bunsen, to whose labours I am so much indebted, remarks that Seth "appears gradually among the Semites as the background of their religious consciousness," and not merely was he "the primitive god of northern Egypt and Palestine," but his genealogy as "the Seth of Genesis, the father of Enoch (the man), must be considered as originally running parallel with that derived from the Elohim, Adam's father." Seth is thus the divine ancestor of the Semites, a character in which, but in relation to other races, the solar deities generally agree with him. The kings and priests of ancient peoples claimed this divine origin, and "children of the sun" was the title of the members of the sacred caste. When the actual ancestral character of the deity is hidden he is regarded as "the father of his people" and their divine benefactor. He is the introducer of agriculture, the inventor of arts and sciences, and the civilizer of mankind; "characteristics," says Faber, "which every nation ascribed to the first of their



gods or the oldest of their kings." This was true of Thoth, Saturn, and other analogous deities, and the Adam of Hebrew tradition was the father of agriculture, as his representative Noah was the introducer of the vine.

Elsewhere I have endeavoured to show that the name of the great ancestor of Hebrew tradition has been preserved by certain peoples who may thus be classed together as Adamites. He appears, indeed, to be the recognised legendary ancestor of the members of that division of mankind whose primeval home we can scarcely doubt was in Central Asia, answering in this respect to the Seth of the Semites. According to the tradition, however, as handed down to us by the Hebrews, Seth himself was the son of Adam. From this, it would seem to follow that, as Seth was the serpent sun-god (the Agathodæmon), the legendary ancestor of the Adamites must himself have partaken of the same character. Strange as this idea may appear it is not without warrant. We have already seen that the Mexicans ascribed that nature to *Tonacatl-coatl* and his wife, the mother of mankind, and that a similar notion was entertained by various peoples of the old world. The Chaldæan god *Héa* who, as the "teacher of mankind," and the "lord of understanding," answers exactly to the divine benefactor of the race before referred to, was "figured by the great serpent which occupies so conspicuous a place among the symbols of the gods on the black stones recording Babylonian benefactions." The name of the god is connected with the Arabic *Hiya*, which signifies a serpent as well as life, and Sir Henry Rawlinson says that "there are very strong grounds indeed for connecting him with the serpent of scripture, and with the Paradisaical traditions of the tree of knowledge and the tree of life." The god *Héa* was, therefore, the serpent revealer of knowledge, answering in some respects to the serpent of the fall. He was, however, the Agathodæmon, and in the earlier form of the legend doubtless answered to the great human ancestor himself. It is curious that, according to Rabbinical tradition, Cain was the son, not of Adam, but of the serpent-spirit Asmodeus, who is the same as the Persian Ahri-man, "the great serpent with two feet." In the name of Eve, the mother of mankind, we have, indeed, direct reference to the supposed serpent-nature of our first parents. Clemens Alexandrinus long since remarked that the name *Hevia*, aspirated, signifies a female serpent. The name Eve is evidently connected with the same Arabic root as that which we have seen to mean both "life" and "a serpent," and the Persians appear to have called the constellation *Serpens* "the little Ava," that is *Eve*, a title which is still given to it by the Arabs. But if Eve was the serpent mother, Adam must have been the serpent father.



In the old Akkad tongue *Ad* signifies "a father," and the mythical personages with whom Adam is most nearly allied, such as Seth or Saturn, Taaut or Thoth, and others, were serpent deities. Such would seem to have been the case also with the deities whose names show a close formal resemblance to that of Adam. Thus the original name of Hercules was *Sandan* or *Adanos*, and Hercules, like the allied god Mars, was undoubtedly often closely associated with the serpent. This notion is confirmed by the identification of Adonis and Osiris as *Azar* or *Adar*, according to Bunsen the later Egyptian *Sar-Apis*, who is known to have been represented as a serpent. The *Abaddon* of St. John, the old dragon Satan, was probably intended for the same serpent-god. It is interesting to compare the ideas entertained as to the great dragon in the Book of Revelation and those held by the Chinese in relation to probably the same being. Mr. Doolittle says: "The dragon holds a remarkable position in the history and government of China. It also enjoys an ominous eminence in the affections of the Chinese people. It is frequently represented as the greatest benefactor of mankind. It is the dragon which causes the clouds to form and the rain to fall. The Chinese delight in praising its wonderful properties and powers. It is the venerated symbol of good."

It is remarkable that one of the most ancient people of whom we have any written record—the primitive inhabitants of Chaldæa—not only bore the name of the traditional father of mankind, but were especially identified with the serpent. The predecessors of the *Akkad*, in Chaldæa, were the Medes, or *Mad*, of Berosus, and the distinctive title of at least the later Medes was *Mdr*, which in Persian means "a snake." This Sir Henry Rawlinson supposes to have given rise "not only to the Persian traditions of *Zohák* and his snakes, but to the Armenian traditions, also, of the dragon dynasty of Media." The Medes of Berosus belonged almost certainly to the old Scythic stock of Central Asia, to whom the Chaldæans, the Hebrews, and the Aryans have alike been affiliated by different writers. When, therefore, Mr. Fergusson says that serpent-worship characterised the old Turanian Chaldæan Empire, he would seem to trace it to the old Asiatic centre. Probably to the same source must be traced the serpent tradition of the Abyssinian kings. Bryant long since asserted that that superstition originated with the Amonians or Hamites, who also would seem to have been derived from the Scythic stock. The facts brought together in this paper far from exhaust the subject, but they appear to justify the following conclusions:—

First, The serpent has been viewed with awe or veneration from primeval times, and almost universally as a re-embodiment

of a deceased human being, and as such there were ascribed to it the attributes of life and wisdom, and the power of healing.

Secondly, The idea of a simple spirit re-incarnation of a deceased ancestor gave rise to the notion that mankind originally sprang from a serpent, and ultimately to a legend embodying that idea.

Thirdly, This legend was connected with nature—or rather sun—worship, and the sun was, therefore, looked upon as the divine serpent—father of man and nature.

Fourthly, Serpent-worship, as a developed religious system, originated in Central Asia, the home of the great Scythic stock, from whom all the civilised races of the historical period sprang.

Fifthly, These peoples are the Adamites, and their legendary ancestor was at one time regarded as the Great Serpent, his descendants being in a special sense serpent-worshippers.

#### DISCUSSION.

LORD TALBOT DE MALAHIDE said :—We have every reason to be obliged to Mr. Wake for his valuable and interesting paper. We must not, however, be expected to agree with him in all his conclusions. Indeed, I think Mr. Darwin would hardly admit that we could possibly be descended from the serpent. He has found us higher parentage. Before coming to any definite conclusion on this difficult subject, it is absolutely necessary to collect as large as possible an array of facts not only as to the past state, but the present prevalence of serpent worship. It is notorious that in the traditions of the Deccan the cobra plays a great part as a powerful and beneficent being. But probably one of the most startling instances of serpent-worship in the present day is an instance mentioned to me by my friend Sir Vincent Eyre, who had witnessed it himself, in France, a few years since, in the neighbourhood of the baths of Luchon. I cannot recollect the precise details, but he made a very interesting communication on the subject to the "*Athenæum*" journal.

Mr. PARK HARRISON had listened to the greater part of the paper with much interest, but was unable to accept Mr. Wake's conclusions. The theory that snakes were regarded in early times as emblems of electric phenomena and the wind, suggests an origin for serpent-worship more in accordance with the evidence before them; and there were other facts which might be quoted in support of the same view. Thus we are told that the Mexican god of thunder was represented with a golden snake in his hand; and the American Indians termed lightning "the great serpent." The same people also revered a cloud-serpent, answering to "the flying dragon of the air" of the middle ages, in which may be recognised the fearful yet health-bestowing thunderstorm, that frequently travels in a snake-like path, and sometimes moulds the clouds into forms more or less resembling the legendary dragon.\* The meteoric theory helps to connect serpent

\* "Sometimes we see a cloud that's dragonish."—SHAKESPEARE.

and sun-worship; and though, in course of time, in some countries the emblem lost altogether its pristine meaning and became an object of worship for its own sake, in others myths like those of Hercules and the Hydra, and Apollo and the Python, show that the original idea was not lost sight of amongst intelligent races. If it had been a fact that the brazen serpent was set up for the purpose of being worshipped, it would be necessary to assume that the prohibition regarding the religious use of images of all kinds by the Israelites had been withdrawn. But there is nothing in the account quoted by Mr. Wake to show that any act of worship was paid, or directed to be paid. Several hundred years afterwards, when it had become for some time an object of superstitious reverence, we are told the symbol was destroyed for that reason. The Sethians were an Egyptian sect of no earlier date than the third or fourth century of our era. The lexicons do not appear to support an etymology that would connect Seth with serpent.

Mr. CONWAY thought that in considering the origin of serpent-worship it was necessary to remember the extent to which euphemism prevailed in ancient religion. The Greeks are said to have called the Axine Sea Euxine to soothe its roughness, and the Furies Eumenides, or well-meaning, to flatter and soften them. However that might be, it was quite consistent with worshipping the serpent as an Agathodæmon, or associating him with the rainbow (as in Persia) and the sun, that in the beginning he should have been propitiated through simple dread as the most subtle and mysterious enemy of man. It was, he submitted, a confirmation of this that even when the serpent was worshipped, there appeared also traces of a diabolical and hostile character at some time ascribed to him. Thus in India, though the cobra is honoured as of the rank of a Brahman, the mark on his head is popularly said to have been left there by the heel of Vishnu. Among the Hebrews the adoration of the brazen serpent, the ornamentation of the sacred ark with seraphim (the Hebrew word for serpents), were associated with the seeming anomaly of his appearance as a kakodæmon in Eden. No doubt in the dangerous character of the serpent the supplication of him as the agent of divine wrath began, and he was subsequently invested with the splendours of poetic and mythological invention. It was very remarkable, as Mr. Wake had remarked, how deep a hold the serpent superstition had upon human nature. It scorns the usual ethnical limits. Connected as he is in India with the rain-cloud, he is no less so associated among Africans, and he (Mr. Conway) had often seen negroes kill a snake in times of drought and hang it up by the tail to bring rain. In confirmation of what Mr. Wake had said concerning the recent case of serpent-worship in France, he (Mr. Conway) might add that there was now appearing in a New England magazine a story based upon the legend actually told, as he happened to know, by a peasant girl of Fontainebleau, in good faith, to the authoress of that story, of the descent of their family from a serpent. Here was the fair Melusina fully accredited in France in our own day.

Dr. A. CAMPBELL said that he did not intend making any remarks on the paper which had dealt so fully with serpent-worship all over the world, but he begged leave to draw the attention of the meeting to the vase now exhibited, illustrating some form of serpent-worship in India, and he hoped that some one present would be able to interpret the bearing of the vase, as he could not do so himself. Dr. Campbell had borrowed the vase for this occasion from Dr. Hooker, to whom it had been brought from Calcutta by Dr. King, Superintendent of the Botanical Gardens there. Dr. King, who was not in England now, was informed that the vase was believed by priests and people—Hindoos—to be prehistoric in design and workmanship. Dr. Campbell directed attention to the beautiful workmanship, as well as the elegant form of the vase, which was of silver. The body of it was the shape of a water-goglet or caraffe, but with wider neck and mouth. Over the mouth of it rose a many-headed crest of the cobra serpent, beautifully engraved, and, as it were, guarding the contents of the vase, supposing it to be the holy Ganges water. The handle of the vase was formed by the body of the serpent bending backwards from the neck. This was equally graceful in form, and of beautiful workmanship. At the top of the handle is a standing figure of Hooniman the Monkey, General of the Ramayun. In front of the vase, attached to it, but not communicating with the interior of it, is a projecting vessel, resembling the open lamp or "cruishkan" used in Scotland, Ireland, and India at this day. Dr. Campbell said that this projection and the snake heads may, however, be symbols of greater mysteries which he could not fully explain.

Mr. GEORGE DIBLEY said :—I take the liberty of entirely dissenting from the views of the gentleman who has just addressed the meeting. To discuss the opinions of religious professors relative to the serpent recorded in Genesis does not fall within the province of this Society, as we should get into an interminable discussion, resulting in an absolute waste of time in consequence of having to deal with a variety of hypotheses which are generally generated in the imaginations of those who make them, and are therefore necessarily of a most contradictory and even absurd character. I am a little disappointed, as the title of the paper does not appear to me to have been fully borne out even by the able remarks and facts that have been narrated by the writer. To ascertain the origin of serpent-worship appears to me to be a most difficult subject, as it lies still in the depths of the yet unfathomed ocean of antiquity. One great difficulty in treating with these far prehistoric subjects is our incapacity of transforming ourselves into the same circumstances and ideas that existed in such remote periods, as it is only by so doing that we can get even an approximately correct view concerning them. As many suggestions have been made this evening, I think I may be pardoned for offering one. It appears to me that serpent-worship must have originated in a purely symbolical age. One indication of this is its comparative universality. Serpents probably symbolised sensation; sensation is universal; and we well know that any one

who simply gratifies his senses without the correcting influence of his intellectual and moral faculties soon becomes degraded; hence the award that "dust should be the serpent's meat." The manifold forms of serpent-worship may have been expressive of a variety of particulars which flow from sensation.

Dr. CARTER BLAKE considered that America was *par excellence* the country of serpent-worship, which need not necessarily have originated in Central Asia, and pointed out that true worship of serpents had been observed in parts of the world where ophidian reptiles do not exist.

Dr. CHARNOCK thought serpent-worship might in some cases have originated through a wrong interpretation of proper names and the mixing up of mythology with the Scriptures. Thus Ops (*i.e.*, Rhea or Semele), who was daughter of Cœlus and Terra, and whose name is really derived from *ops*, *opis*, riches, was supposed by some to have been called from *opis*, a serpent. Saturn (son of Ops) begat Jove, which is without doubt etymologically the same name as Jehovah. Saturn, Noah, and Janus have been thought to refer to the same deity; and Janus was represented by the Phœnicians in the form of a serpent with his tail in his mouth. Osiris, Oceanus, Serapis, and Apis, and the patriarch Joseph, have been supposed to be identical. The Egyptian form of Apis is *Aḥwv*, whilst *Oḥwv* is rendered "serpens," and Achelous, son of Oceanus, metamorphosed himself into a serpent. Again, the winged serpent Cnuphis or Cneph (*Κνυφ*) in Egyptian mythology was esteemed the good genius and creator of the world. Canopus, pilot of Menelaus, was wrecked on the coast of Egypt, and died there of the bite of a serpent. After his death he was honoured with a monument, and a city erected and named after him, where he was worshipped under the name of Serapis. Further, the Hebrew *seraph* is rendered "pytho," whilst the plural, *seraphim*, is translated both "winged serpents," and "bright or shining angels." Apart from the paper, he (Dr. Charnock) thought the distribution of serpent-worship had been over-rated, and that some authors discovered it everywhere. According to some, Abury showed serpent-worship, so did Stonehenge, and even the *Pierres Alignées*, at Carnac in Bretagne. It had lately been thought to have prevailed in Argyllshire, partly on the ground that the town named Oban means "serpent of the sun." A Phœnicio-Egyptian compound having such a meaning might possibly be corrupted down to Oban; but the place more probably had its name from being situated on a beautiful bay, *oban* in Gaelic meaning a bay or harbour.

Mr. WAKE said in reply that, of course, he did not mean to suggest that man had actually had a serpent origin. He merely stated the ideas of other people. Referring to Mr. Harrison's opinion that the superstitious regard for that animal had arisen from the belief common among the American tribes that the lightning is a great serpent, he believed, on the other hand, that the atmospheric connection of the animal in question was of a more recent origin than that which associated it with the spirits of the dead. Mr. Moncure Conway had



referred to the universal prevalence of the serpent superstition, and to the fact that in India the cobra has the position of a Brahman, but he could not determine whether the serpent was first feared as a demon or venerated as an Agathodæmon, although probably it was the former. His (Mr. Wake's) view, however, was that the original feeling was one neither of fear nor of reverence, but an indefinite one, arising from the uncertainty as to whether the serpent embodiment of the deceased ancestor had presented itself for a good or an evil purpose. The serpent would afterwards come to be regarded with dread or veneration by various peoples, according to the ideas which they had gradually associated with it. In all the ancient mythologies, moreover, there were both good and bad serpents. Mr. Charlesworth had regretted that the paper did not refer more fully to the element of serpent-worship in our national theology. The omission had been intentional, but he fully admitted its importance, although, so far from accepting Dr. Adam Clarke's notion of the serpent of the fall being an ape, he believed that according to the original reading of the legend the serpent and the man Adam were one and the same. The temptation was the seduction of the woman by the man, or the reverse, the sexual act necessary to the perpetuation of the human race having been considered as a sign of moral impurity. The serpent might thus be viewed as a symbol of the sexual sense, but there was no ground for supposing it to have symbolised the senses, as Mr. Dibley thought. It was more likely to have represented the matter by which the senses are seduced. Dr. Carter Blake had referred to the existence of serpent-veneration in countries where no serpents are to be found; and the author believed that the meaning of the legend that St. Patrick expelled all the snakes from Ireland was that he put down serpent-worship. The co-existence of the phallic symbol, the open red hand, and the serpent superstition in America mentioned by Dr. Blake, was interesting, but the latter superstition could be said to be phallic only so far as the serpent was viewed as the embodiment of the deceased ancestor. No doubt, as Mr. Price remarked, the power of distending the head, possessed by the cobra, led to this animal being treated as emblematic of the male activity, but that might be explained without holding the serpent superstition to be really phallic. Veneration for the serpent may sometimes have originated, as supposed by Dr. Charnock, in mistakes as to the meaning of certain names met with in ancient mythology, but he (Mr. Wake) thought that these would, if thoroughly examined, support the view he had taken. Finally, he said that he could not accept the opinion referred to by Dr. Blake, that serpent-worship had originated on the American continent. That was part of a much wider question, but he believed that the American nations among whom the superstition was the most prevalent had sprung from Central Asia, and if so their serpent-worship must be traced to the same position.

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The Director read the following paper :

*On GĀRO HILL TRIBES, BENGAL.* By Major H. H. GODWIN-AUSTEN, F.R.G.S., F.Z.S., etc., Deputy-Superintendent Topographical Survey of India.

IN a paper read before the Anthropological Institute in May, 1871, I gave some account of the customs of the Khāsis, particularly those connected with the erection of stone monuments similar to those known in Europe as druidical. In the present communication I propose to touch on a few points of interest connected with the tribes on their west, viz., the Gāros, occupying the extreme west point of the range of hills south of the Brahmaputra, and which terminate with the great bend of that river, on long. 90° E. The Gāros are of Bodo origin, and are closely allied to the Kachāri, who are found along the base of the hills from Gwalpāra to the Kopili river, where they have long been the principal tribe, extending across the hills to the southern base in Cachar. The Méch of the Bhūtan Dūars is also a kindred tribe. The languages of the Gāro and Kachāri of the Kopili, are very similar ; neither erect stone monuments, and both burn their dead. The Kachāri are certainly Hinduized, and have received a certain admixture of western blood, and they are taller and better featured than the Gāro.

Occupying the intermediate strip of country on the Um Blay river, between the Khāsi and the Gāros, there is a small tribe, the Migām or Langām, speaking a different dialect but assimilating more with the latter ; they are darker than the former, cultivate cotton, and build houses raised off the ground ; they dress like Gāros, but the women never wear the numerous and heavy earrings of that tribe. Stone monuments are not erected by them, but they resort to the general forms of sacrifice and incantation in case of sickness, etc. ; the sacrifice of fowls and the smearing of the door posts, or green boughs of trees set up near them, with the blood and feathers, having been noticed by me in both Gāro, Langām, and Khāsi villages. They erect carved stakes and bamboo platforms, on which are placed offerings as propitiation for good fortune. I give a drawing of one of these perishable monuments, and am of opinion that in the same way as the former use of wood in the construction of Hindu temples on the continent of India affected the style of architecture afterwards adopted, so these primitive wooden posts and tables led to the construction of the monolith and dolmen—their use and the motive being, as we find in tribes living contiguous in the Khāsi hills, precisely similar.

An uneven number of stakes is set up, and this is the same with the Khāsi monuments ; they are of bamboo, split up at the

head, and opened out to carry a little plaited table on which offerings are placed. The table in front is made of the same wood and tied together with twisted strips of cane. I have noticed leaves with a few grains of rice placed on this, and a pig or goat is sacrificed at the time they are set up. At the base of the stakes in the drawing, imitations in wood of the small short hoes used in weeding their fields are represented, and a broken "ghara" (water vessel) may often be seen. I believe this particular "offertory" had been erected to ensure a good harvest. The Gāros further west have a custom of setting up variously carved and peeled posts to avert sickness or any ill-luck, a custom also practised by tribes in Aracan, and alluded to in a paper read last June at the Anthropological Institute, by Mr. St. Andrew St. John. To give drawings of all the different forms would be very difficult, but I give one as a type of what they are generally like. Some are very large and intricately fashioned. That represented here was to avert headache and light-headedness, not an uncommon complaint with them after one of their drinking bouts.

A very interesting section of the Gāros is a small clan called Atong, who have again a different dialect containing a great number of words not in use by other and neighbouring sections. On comparison many of these appear derivable from dialects on the Muniṭūr side, and it is not improbable that these Atongs have found their way thence, at some distant period, along the base of the North Cachar and Khāsi hills into this locality, in the same way as we find Muniṭūri emigrants recently settling in Shūshang (Mymensing). As an instance of how far small communities will travel, these particular Muniṭūris had, in the first instance, after leaving their own valley, crossed the north Cachar hills and squatted near Gowhatty, where not getting on, they followed the base of the northern slopes round the extreme end of the Gāro hills to the village where I saw them near Shūshang. In appearance the Atong differs from other Gāros, he is rather taller, fairer, and better looking, but from close contiguity with them, dress and habitations are the same. I append a short vocabulary of the language, from which it may be seen it differs materially from all those spoken around.

One great point of difference between the Khāsi and Gāro is the use of the bow by the former, while the latter carry spears only and a very peculiar form of short sword, called "darai;" it is 2 ft. 9 in. long, the handle and blade in one piece. These swords are all made for them by Bengali iron smiths in the plains. I have never seen such a form from either the Peninsular or N.W. of India, and the nearest to it in shape is the Burmese dao; the substitution of a wooden handle for iron being

the only difference. There appears to me to be on this side of India a gradual approach from the spear (which I take to be the most primitive weapon) into the *dāo*. Spears range from the small iron pointed kind of the *Gāro*, to the very long iron headed, short hafted kind among the *Nāgā* tribes. Both people use their spears as knives or bill hooks in cutting boughs and creepers that impede the jungle paths. From the *Nāgā* form, in which the wooden haft is not longer than the iron head, to the Burmese *dāo* is but a very short advance, and into a weapon like the *Gāro* "*darai*" entirely of iron, only another, which may have had an independent origin; but as the Burmese overran the Assam valley, their form of sword would have been quite familiar to the *Gāro* people and to the iron smiths they employ. The spears are short, having heavy iron points with well sharpened edges. In action they only throw pointed ones of bamboo, every man carrying two or three. The *Gāros* fear the bow and arrow of their neighbours, and the two people appear to have seldom molested each other. They do not appear to possess any fire-arms, or if they have any, their use is most restricted. The houses of the interior villages are well built, and are very long, raised about four feet off the ground; in every village is the "*bolbang*" or young men's house, the largest in the place, built upon very large upright posts, the front beams adorned with some little carving. The floor is at least twelve feet, often more above the ground, ascended by notched logs and the roof solidly thatched. In this house all the unmarried males live, as soon as they attain the age of puberty, and in this any travellers are put up; this custom prevails also among the *Mikirs* and the *Nāgā* tribes, but not among all *Kūkis*. The *Gāros* burn their dead, and after cremation curious railed enclosures, with a grating above, are made of bamboo matting, with grotesque carved posts standing at the corners. I saw no less than three of these in one village street, and I produce a drawing which will give, I hope, a fair idea of what they are like. This is what Mr. John Elliot says, "*Asiatic Researches*," vol. iii. (1792):

"The dead are kept four days, burnt, the ashes put into a hole exactly where the funeral pyre was made, covered with a small thatch building and surrounded with a railing; a lamp is burnt within the building every night for a month or more, the wearing apparel of the deceased is hung on poles fixed at each corner of the railing, which after a certain time, from six weeks to two months, are broken and then allowed to hang downwards till they fall to pieces. They burn their dead within six or eight yards of their changs, and the ceremony is performed at exactly twelve o'clock at night; the pile is lighted by the

nearest relation; after this they feast, etc. If it be a person of rank, a bullock is sacrificed and the head of the beast burnt with the corpse, but if it be an upper hill Gāro (a chief) the head of one or more slaves would be cut off and burnt with him. The railed graves of head men are decorated with images of animals."\*

The manners, customs and ceremonies of these people have never been fully described, and I was unable to obtain complete and satisfactory information owing to my colloquial ignorance of the language; information obtained through interpreters is not always trustworthy, and requires verification by long residence among them. Captain Williamson who has had great opportunities will, no doubt when his duties permit, give us something more definite. They practise human sacrifice, and generally select their victims out of the Bengali villages in the plains. The last season my survey party worked in the Gāro hills, a Goorkha of the establishment was captured and never seen again; his companion had a narrow escape, being chased for a long distance with the help of dogs. Blood feuds seem very common among the different clans, and they exercise their revenge on women and children alike. They eat animal food of every kind, even reptiles; dogs they are very fond of, and large numbers of puppies are brought up in the plains, fattened by the outer Gāros and taken into the interior for barter. They are diligent cultivators. \*I saw more joomed (cleared) land in the interior than in any part of the Khāsi-Gāro range, and cotton is their principal crop. The women adorn themselves with a great number of large brass ear-rings, so heavy that they drag the lobe of the ear down to the shoulder, and it often requires a chain passing over the top of the head to prevent this from breaking; ears so destroyed are often seen. Armlets of brass are also worn and necklaces of small red coral beads. The Langām women pile these necklaces on until the neck is completely hidden, and nearly as broad as the head above, giving them a most peculiar short necked appearance. The women wear a very short strip of striped blue coloured cotton (of their own manufacture) round the waist, and are quite nude above, throwing a white cloth over the shoulders only in cold weather. The men wear a very narrow waist cloth tied behind and then brought up between the legs; the portion hanging over in front is sometimes adorned with brass boss-like ornaments, and white long shaped beads, made out of the columella of certain conch shells, manufactured by Gāros at the base of the hills. A curious

\* They believe that after death the soul of a Gāro goes to the peak of Chickmung or Kylas of the Bengalis, which is the most conspicuous point in the hills. This peak they consider very sacred and they never ascend it.

tinsel coronet is worn by men in the independent villages who have taken a life in action. The Gāros are short and robust with well-formed strong limbs, but their faces have a disagreeable coarse expression; a good-looking individual is seldom seen. The women shorter and more square in figure, certainly ugly, and as a race they are inferior to all the hill tribes I have seen on the Eastern frontier. Among the Khāsis, Kūkis, and especially the Mikirs, very good-looking young men and women are to be seen.

## DISCUSSION.

Mr. LEWIS said no one could fail to see the resemblance between the stone erections of the Khasias as depicted by Dr. Hooker, and the bamboo erections of the Gāro tribes as depicted by Major Godwin-Austen; but at the same time he hesitated to accept the suggestion of the latter gentleman that the bamboo structures were the originals from which the stone monuments had been copied. He thought it more probable that the stone monuments were the originals, and that the Gāro tribes had adopted bamboo from want either of suitable stone, or of ability or inclination to make use of it. It was worthy of remark, also, that whereas the Khasian erections were, according to Dr. Hooker, generally memorials of the deceased, the Gāro structures were, according to Major Godwin-Austen, used for sacrificial purposes, as, according to Colonel Forbes Leslie, were lines of upright stones in Southern India.

Dr. A. CAMPBELL said that he considered Major Austen's paper a very interesting one, especially as it followed Mr. St. John's paper on the Hill Tribes of Aracan, recently read before the Institute, thus bringing to our notice some of the people who inhabited a portion of our Indian frontier not very well known to us before. In this region, we find from these papers, and from the accounts of the late campaign against the Looshais, that there is a great admixture of different bloods. We have the northern Aracan tribes assimilated to some extent with the Burmese on the one hand, and on the other with the Looshais and Gāros. In this corner of our frontier—south of the Burrampootur—it may be said that the Indo-Chinese and the Indo-Himalayan races meet and mingle to form the existing tribes—viz., the Munnipoorees, Kookees, and Looshais; the Garrows, the Northern Arracanes, Khasias, Nagas, and others. From Major Austen's description of the Garrows, it would appear that they are less savage now than they were when we first came in contact with them—about the end of the last century; at least he does not allude to any peculiarly savage customs, as he no doubt would have done had such been prevalent. In 1815, the joint-magistrate of Bungpoor, in reporting on the Garrows, said:—"When a quarrel arises between two Garrows, the weaker party flies to a hill to elude the vengeance of his more powerful antagonist. Both parties immediately plant a tree bearing a sour fruit called M. Nalakar, and make a solemn vow that they will avail themselves of the earliest opportunity that offers to eat its



fruit with the juice of their antagonist's head. A generation may pass away without either party finding an opportunity of revenge, in which case the feud becomes hereditary, and descends to the children. The party who eventually succeeds in revenging himself upon his antagonist cuts off his head, summons his friends, with whom he boils the head, along with the fruit of the tree, and portions out the mixed juice to them, and drinks of it himself. The tree is then cut down and the feud is at an end. This account exhibits such a shocking instance of human depravity, that I should not have deemed it for a moment worthy of credit, had not subsequent inquiry from other and various sources satisfied me that the practice really existed." Dr. Campbell further said that he thought the time had now come, when any of the innumerable tribes of our Indian possessions were described, that it should be ascertained, as far as possible, to what extent their habits and customs had become less savage from contact less or more close with Europeans. Dr. Campbell believed that a gradual improvement was taking place, no doubt attributable in a great degree to our presence in India. Dr. Campbell could not recollect that any one tribe in India had in the course of our rule there become extinct or had retrograded; whereas in America and Australia tribe upon tribe had become extinct, and many of the remaining ones were degraded below the level of the brutes since they came in contact with Europeans; and this, Dr. Campbell thought, was very gratifying on the one hand, and very distressing on the other.

The meeting then separated.

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#### JANUARY 7TH, 1873.

SIR JOHN LUBBOCK, Bart., M.P., F.R.S., *President, in the Chair.*

THE minutes of the previous meeting were read and confirmed.

GEORGE JAMES DUNCAN, Esq., B.A., Old Square, Lincoln's Inn; and ROBERT EMMETT LARGE, Esq., South Square, Gray's Inn, were elected members.

IL CANONICO SPANO, of Sardinia, was elected a Corresponding Member.

A. P. REID, Esq., M.D., was elected Local Secretary for Halifax, Nova Scotia.

The following presents were announced, and the thanks of the meeting voted to the respective donors.

#### FOR THE LIBRARY.

From the SOCIETY.—Catalogue of Library of the Royal Geographical Society, to 1870.



- From the SOCIETY.—Proceedings of the Royal Society, vol. xxi, No. 139.
- From the EDITOR.—Medizinische Jahrbucher Herausgegeben der K. K. Gesellschaft der Aerzte. Wien, No. 4, 1872.
- From the ASSOCIATION.—Journal of the Royal Historical and Archaeological Association of Ireland, vol. ii, No. 2, 1872.
- From the ACADEMY.—Verslagen en Mededeelingen der Koninklijke Akademie Amsterdam, 1872. Jaarboek van ditto, 1871. Processen Verbaal, ditto, 1872.
- From the AUTHOR.—On the Agricultural Geology of the Weald, with map, by Wm. Topley, F.G.S.
- From JAMES BURNS, Esq.—Human Nature for January 1873.
- From the EDITOR.—La Revue Scientifique, No. 27, Jan. 1873.
- From the PALERMO INSTITUTE.—Giornale di Scienze Naturali ed Economichi, tom ii, fas. 1.
- From the EDITOR.—The Spiritualist (to date).

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The Director read the following paper:

*THE ATLANTÉAN RACE OF WESTERN EUROPE.* By the late J. W. JACKSON, M.A.I.

IN an admirable paper on "The Kimmerian and Atlantean Races" by Hector Maclean, Esq., read before the Ethnological Society of London, November 8th, 1870, and in some remarks by Mr. J. F. Campbell, of Islay, and in a postscript by the latter gentleman, under the head of Anthropological Notes, in the July number of the Journal of the Anthropological Institute, frequent allusion is made to a dark Atlantean race, commingled with the fair Kimmerians; these Atlanteans being regarded by Mr. Campbell, as being probably of Turanian origin. It is the latter opinion which it is the object of this paper more especially to controvert, although as an introduction to this, it would be well to make a few remarks on the Kimmerian and Atlantean hypothesis generally.

That the predominantly red-haired and russet Kimmerians, and fair-haired and blonde Teutons, are of Aryan origin, there can be no doubt, but whether because of Aryan origin they should therefore be derived from the East, is quite another question. To those who think with me, that Europe rather than Asia is the primal seat, and therefore the more appropriate habitat of the Aryan type, this assumption of an Oriental origin for a people whose most vigorous individualities, whether regarded mentally or physically, are found in the West, must seem worse than doubtful: it must be regarded as altogether untenable. If Asia were the birthplace of these tall, large-headed, high-featured, fair-skinned men, with hair of "metallic lustre," and we may add, brains of Jovian weight and force, how is it

that the type, to all practical intents and purposes, has there become extinct, while it not only flourishes in perennial vigour in western Europe, but is "coloured with warmer and brighter tints" in Britain, than in either France or Germany. If this be indeed so, then all our ideas about the influence of ethnic area must undergo revision, and we must be prepared to admit, that a distinctly characterised type can not only exist permanently on an alien site, and under telluric conditions very different from those attaching to its place of emergence; but that in virtue of this geographical transference, its aboriginal specialities may be intensified, and all its higher qualities increased in power and efficiency. The origin of the Kimmerian, it will thus be seen, is part of a larger whole, and cannot be definitively settled as an isolated fact. It amounts to this, the so-called Caucasians of Europe, whether dark or fair, are either aboriginal or derivative; and as yet we are only at an incipient stage in the controversy which is ultimately to decide this very important question. We have neither the moral nor material data for its solution. We lack the requisite lingual, mythological and archæological facts on the one hand, and we are deficient in the needful ethnic minutiae on the other. Having, however, already committed myself in several papers, perhaps rather prematurely, to the non-Asian origin of the so-called Aryans of Europe, I will say no more on this particular subject at present, lest my remarks should partake of the zeal of the partizan, rather than the calmness of the investigator.

Whatever the origin of the Kimmerians, however, there is no doubt they have been located in Europe from before the period of authentic history or even reliable tradition. They are portrayed in the poems of Ossian, they are described by Tacitus, and they were painted to the life by Homer. All that we can say of them then at present, from the historical standpoint, is, that they are one of the fair races of Europe, and the only other point respecting them remaining for solution, is their ethnic grade, as compared with that of either the fair or the dark races with whom they are commingled. And here perhaps we shall not be far wrong in affirming that they are the most vigorous of all the fair types of the West. They are the tallest, their legs are the straightest, and their thoracic bears the largest proportion to their abdominal development. This is only saying in detail, that they are the most effectually Caucasianised of all the xanthous varieties of man. Whether, however, they should be regarded as pure Celts, or as the most advanced and matured of the Teutonic types, allied to, if not identical with, the Scandinavian, or as simply a fair European race, *sui generis*, is, we think, yet open for discussion. We incline to the last view, but would

especially deprecate any approach to dogmatism on a subject, for the satisfactory settlement of which, the resources of anthropology are as yet altogether inadequate.

But are we thus shut up to the necessity of supposing that all the Aryans were golden-haired, russet, or as Mr. Campbell phrases it, "burnt sienna" men? Were all, or even a majority of the Greeks and Romans thus characterised? And yet how thoroughly Aryan were their magnificent inflectional languages, the true sisters of the Zend and the Sanscrit. And it need scarcely be said how thoroughly Caucasianised was their type, more especially as regards the fundamental element of *form*. And as still existent and observable facts are of the utmost value in Anthropological investigations, we may again ask in this connection, are the modern Greeks and Italians a fair-haired, golden-haired, or russet race? Nay, we may go yet farther, and ask if the climatic conditions of the Mediterranean seaboard are such as to permit of the permanent existence of a predominantly xanthous people on such an area.

And here we probably touch on the producing influences to which, in large part, we owe the Kimmerian type. It is the product of a northern temperate clime, acting on a Caucasian organization specially adapted by the powerful development of respiration for having the blood effectually oxygenated, in the case of those families and individuals, who as soldiers, sportsmen, shepherds or agriculturists, live largely in the open air. And it will accordingly be found to abound far more in the country than the town, while it is more common in the northern than the southern portion of Britain, in fact, because the population of the latter are more predominantly urban. As regards the diversities of the xanthous type, we think it will be found that a hilly or open country, devoid of wood and not especially swampy, tends to produce hair of a golden tinge; while a low country, rather abounding in wood, tends to produce a blonde complexion with fair hair, "lassies with the lint white locks." Thus contemplated then, as already observed, we do not regard the Kimmerians as specially Aryans, but simply as one of the rural varieties of this exalted type, producible and sustainable wherever there are breezy downs and bracing uplands for its permanent invigoration.

In our remarks on the Kimmerians we had occasion to allude to several fair races. May there not be an equal, or even a yet greater number of dark races? If, indeed, the dark type be the older of the two, have we not reason to believe that it will have attained to greater ethnic maturity on its own plane, and so have arrived at more of racial subdivision than its fairer rival? We must demur then to the use of the word Atlantean, except

avowedly as a generic term covering a vast range of subordinate varieties, some of whom may possibly be non-Aryan, but not necessarily on this account non-Caucasian. It is here that we differ from Mr. Campbell. In his remarks he seems to imply that all who are not Aryans must be Turanians, quite forgetting the predominantly dark-haired and dark-eyed Semites, who certainly abound in Spain and southern France, if not in Ireland and south Britain. Mr. Maclean has been more cautious in this respect, and if we mistake not, rather inclines to the hypothesis of a possibly African origin for some of his Atlantean types, whose predominant characteristics are assuredly not Turanian, even if non-Aryan.

And here we are brought to a consideration of the origin and relation of the dark Caucasian types of the world, a very important problem, for it involves the character, quality and ethnic status of those who as Hindoos, Egyptians, Phœnicians, Assyrians, Persians, Greeks and Romans transacted what we term history, and in effect developed, what we commonly understand by civilization. Perhaps we should not altogether err in this matter, were we to succinctly define the dark-haired and brown-skinned (melanic) Caucasian, as the man of the past, and his xanthous brother as the man of the future. In this, as in much else, we are at a transitional stage in the great and steadily unfolding drama of human destiny; what we now witness being the gradual transference of empire from the melanic to the xanthous division of the Caucasian race. In its military phase, this began with the conquest of the dark Roman by the fair Goth, and was continued in the overthrow of Napoleon I. by the red-bearded Russian; and of his nephew by the light-haired German. In the theological sphere it was continued at the Reformation, and it is proceeding intellectually as empire and civilization in their north-western march, are infringing on the shores of Britain.

The dark-haired and melanic Caucasians of Europe now emerge into view under a somewhat different aspect. They are the western branch of that great family who transacted history. Perhaps they are more immediately descended from the men of the bronze era. In the sequences of organic development they doubtless preceded the xanthous varieties. They were produced under less advanced telluric conditions than the latter. Their constitution implies that there was more carbon and less oxygen in the atmosphere at the period of their ethnic emergence, and hence it is that they abound in southern countries, and tend to remain prevalent in the large cities, even of the north. As an earlier they are, however, on their own plane, a more matured type of man than the xanthous variety. The

osseous structure is finer and less angular, the extremities are smaller, the joints are more firmly knit, and the frame is more elastic. In the matter of temperament, they are nervo-fibrous, while the xanthous are predominantly sanguineous. It is no wonder, therefore, that very many of the authors, artists and military commanders of modern Europe, more especially those of the highest order, were of this type, either pure, or mingled in large proportions with the xanthous. Perhaps we here obtain a prophesy of man's organic future at least, in the northern portion of the temperate zone. The xanthous variety will furnish physical and intellectual vigour, they are humanity cast in a larger mould, while the melanic type will provide the delicacy, refinement and susceptibility requisite for the highest culture, and, we may add, the manifestation of the finest genius.

A word on the data of Mr. Maclean and Mr. Campbell, and we will conclude a paper, already too long, but for the importance of its subject matter. The first gentleman has erred from contemplating the racial aspects of all western Europe too exclusively from a Scottish standpoint. As a result of this he has exaggerated the importance of the red Kimmerian, as compared with the other xanthous varieties of the north. This, however, was an error on the right side, as the neglected Kimmerian wanted a man to stand up for him in the Anthropological arena. Mr. Campbell has erred from taking the social *débris* of London and Paris, as fair specimens of the smaller Atlantean variety of European man. This has led him into the palpable mistake of supposing that the melanic is a less effectually Caucasianised variety of man than the xanthous. He seems to have overlooked the fact that in all great cities there is a debased sediment, in fact, the degraded instruments and victims of the vices attendant on a showy but corrupt civilization. Now this class, as I pointed out in my paper on the Aryan and the Semite, tends by a process of racial retrocession, which we may term collective atavism, to return, on an Aryan area, to a semi-Turanian type, while on a Semitic area, it equally tends to assume a semi-Negroid form. When very strongly emphasised, this constitutes what is commonly known as the criminal type, which is in reality a return to, or a remnant of the savage root-form of the race in which it is manifested.

The practical conclusions then, to which we are brought are, first, that although there may be a large underlying Turanian element in the population of western Europe, this is not special to either the melanic or xanthous variety, under both of which thoroughly Caucasianised individualities are often found. And secondly, of the two great divisions of the Caucasian type of Europe, the melanic is the older and the more finished, but



being formed aboriginally, on a smaller scantling and under inferior telluric conditions, its greatness is a matter for retrospection rather than anticipation. And lastly, that the highest, noblest, and most richly gifted type of our immediate future, will be the product of a union and interfusion of these diversely constituted varieties, this process being somewhat akin to that by which the old Aryans and Semites were more or less commingled at an early historic, if not prehistoric, period on the border lands of Hellas and Palestine; the product being Jews and Phœnicians on the one hand, and perhaps we may add, Greeks, if not Romans, on the other. As was the past so will be the future, what the world is about to witness being, not the submergence of the nervous by the muscular races, as at the fall of Rome, but the emergence and interaction of the nervous races among themselves, with a reproduction on a yet grander scale, of what this same process produced among the classic and Semitic peoples of historic antiquity.

#### DISCUSSION.

Dr. A. CAMPBELL said that, as a native of the Western Highlands of Scotland, to the inhabitants of which Mr. Hector Maclean's and John Campbell of Islay's papers referred, he wished to remark that whether the Atlanteans of red and fair hair were Aryans, and the black-haired ones were Turanians, he could not determine, but from his own observation of Parsees, modern Persians, Affghans, Scindians, Sikhs, Mahommedans, high caste Hindoos—all Aryans—he did not think these Atlanteans came from the East. Nor did he think that the black-haired ones were Eastern Turanians either. The Western Highlanders were of four colours—1. The red-haired, Teutons; 2. the fair-haired, Scandinavians; 3. the brown-haired, long-limbed section, and 4. the black-haired and short-statured section. The last were not like Eastern Turanians, but they did resemble many of the people on the shores of the Mediterranean about Mentone, Monaco, and Nice.

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The following paper was read by the Director :

*The KOJAHS of SOUTHERN INDIA.* By JOHN SHORTT, M.D.,  
Local Secretary of the Anthropological Institute, for Madras.

THE true Kojahs, or Eunuchs, are not numerous in Southern India. They are chiefly seen about the houses of wealthy Mussulman nobles, by whom they are placed at the head of their zenanas or harems. Sometimes they hold important charges with a considerable amount of general control. The ladies of the harem look upon them as their confidential advisers in all matters relating to their personal concerns, whilst to them is left the entire management, arrangement, and supplies, etc.,



of the interior. In fact, all that concerns the female apartment is confided to their care. The Kojahs are popularly divided into two classes—1. *Kojahs*; 2. *Higras*—forming two distinct bodies, each of which it is my object to describe briefly in this paper.

The system of castrating human beings to make eunuchs of them seems to have had its origin in Asia, and is of a very ancient date. As an institution it is peculiar to Orientals, for we find allusions made to eunuchs in both the Old and New Testaments; and from the class of people among whom it prevails there is every reason to suppose that it originated with the prevalence of polygamy. From the fact of native princes burdening themselves with a large number of wives and concubines, they soon began to grow jealous of them, and most probably resorted to the pernicious system of castrating men, with the view of entrusting to these the charge of their overburdened zenanas or female apartments. It is possible that the idea may have originated in seeing natural-born eunuchs, but when the system was once introduced it seems to have taken deep root as an institution by finding favour among the nobles and wealthy of the land. At the present day the practice as a system is entirely confined to Moslem communities and countries where polygamy continues rampant. The people preferred for this purpose seem to have belonged to a tribe of negroes who are recognised by the name of *Schaban*, or black eunuchs; but it is by no means confined to these people entirely, but is open to all classes, castes, and sects, should they as children fall into the hands of money-making scoundrels, who, after practising castration, generally bring them up in the Mohammedan faith. Sometimes Hindoos, Sudras, and Brahmins, subject themselves to the operation of their own accord from a religious impression; others, finding themselves naturally impotent, consider it necessary to undergo the operation to avoid being born again at a future birth in the same helpless state. In some parts of upper India these self-mutilated eunuchs form a community of their own and set up a shrine, at which they worship and go a-begging with a view of supporting themselves and community, each individual being bound by certain rules to hand over a portion of his earnings for the benefit of the community at large. The operation of castration is generally performed by a class of barbers, sometimes by some of the more intelligent of the eunuchs themselves, in the following manner. The patient is made to sit on an upturned new earthen pot, being previously well drugged with opium or *bang*. The entire genitals being seized by the left hand, an assistant, who has a bamboo lath, slit in the centre, runs it down quite close to the pubis, the slit firmly

embracing the whole of the genitals at its root, when the operator, with a sharp razor, runs it down along the face of the lath and removes penis, testicles, and scrotum in one swoop, leaving a large clean open wound behind, in which boiling gingley\* is poured to staunch the bleeding, and the wound covered over with a soft rag steeped in warm oil. This is the only dressing applied to the wound, which is renewed daily, while the patient is confined in a supine position to his bed, and lightly fed with congee, milk, etc. During the operation the patient is urged to cry out "*Deen*"† three times. These cases, I believe, generally do well, and the cicatrix of the wound is scarcely perceptible, except by the fringing of the skin around the urethral orifice, when the operation is resorted to at an early age; but in the adult the cicatrix around the urethra is visible to the extent of a rupee or somewhat less. I am not aware of castration being practised in any part of southern India. The operation is performed, I believe, in the city of Hyderabad, in the Deccan, and in many parts of upper India, whence eunuchs are sometimes imported when a demand is made for them. There is every reason to believe that the practice will continue to exist among the Asiatics for many years to come, in fact as long as the system of polygamy exists; but it is possible that as the light of civilisation dawns, and Christianity penetrates the dark recesses of the zenanas, this vile system may be abandoned as woman becomes an intelligent being, and not the caged animal she is at present considered to be, the mere toy to the lustful passion of man.

Of the two classes, the Kojahs are the artificially created eunuchs, in contradistinction to the Higras (impotents), or natural eunuchs, as they are termed. In the Kojahs, castration is well marked by the absence of the growth of hair on the face, pubis, and other parts of the body. The voice continues unchanged, and is more or less squeaky and soft, the features changing into the female expression with a certain amount of softness, followed by obesity of the person.

Some years ago three Kojahs came under my personal observation for some time. They were at the head of the State prison or "Royal Mahal" at Vellore, in charge of some of the wives, descendants, and other female connections of the late Tippoo Sultan. They were respectively named Umber, Shayee, and Mahomed. Each held a distinct charge. Umber was the chief, about fifty years of age, very obese, and weighed 320 lbs. avoirdupois. He stood about 5 feet 8 inches in height, of simple

\* Commonly termed sweet oil, extracted from the seeds of the *Sesamum Indicum*.

† The faith in Mahomet.

habits, but passionately fond of cock-fighting, had a large establishment of game-cocks of the best breed in the country, and paid great attention to the rearing and training of these birds for the pit. On his death, which occurred two years after, the sale of his estate realised a large sum, the game-birds fetching large prices. Umber died of general dropsy at the age of fifty-two. He was subject to obstruction in the free discharge of urine, caused by the contraction of the urethral orifice. To counteract the contraction he was in the habit at all times of using a small silver tube, something after the shape of a female catheter, and about 4 inches long, every time he urinated. The mouth of the urethra could be seen slightly puckered, of a pale flesh colour, and in level with the skin of that part.

Shayee was also obese. I do not know his exact weight, but should think he was over 200 lbs., and about 5 feet 6 inches in height, and was said to be about forty-five years of age. He also, I believe, died of dropsy. Shayee was a great pigeon-fancier, and kept a large collection of birds at the time I allude to.

Mahomed was a tall spare man; I should say he stood 6 feet in height, and was over fifty years of age. He was a great sportsman and kept dogs and falcons, and was frequently out on shooting excursions when his other duties admitted of his absence. Possibly his active habits may account for his spare make.

In these three cases castration had been performed in childhood, the entire genital organs had been removed, and nothing but the urethral orifice was to be seen about the part. These men, though eunuchs, were highly respected, held charges of considerable trust, and were Mohammedans by birth. Tales were often repeated that the zenana women (slaves and adopted girls) were in the habit of stripping them naked and poking fun at their helplessness. They were intelligent, shrewd, and good business men, and could read and write their own language.

There were two Kojahs in the employ of the late Nabob of the Carnatic. They were both Africans; one has left Madras for Hyderabad, the other is here now. He is a middle-sized man, about sixty-five years of age, and having been seriously ill lately, he is at present much emaciated and feeble; his hands shake with senile tremor. He has no hair about any part of his body, and he has the feminine aspect so common to eunuchs. He states that he was castrated at the age of eleven at some place the name of which he does not remember, and was subsequently sold for a large sum of money, how much it was he cannot tell. He can neither read nor write, but seems a shrewd old man. On arrival at Madras he was at once transferred to the Nabob's zenana as a messenger, and was paid thirty rupees a month,

with food and clothing free. Since the death of the Nabob the Government allows him a pension of fifteen rupees a month.

The second class, Higras, or natural eunuchs, as they are termed, are not so, strictly speaking, but are said to be impotent. Whilst some are naturally so from birth, others are impressed with a belief in childhood, and are dressed up in women's clothes, taught to ape their speech and manners, whilst a few adopt it as a profession in after life. They are chiefly Mussulmans. I examined several of them from time to time, and found them not only strong and muscular, but with their genital organs natural and perfect both in size and appearance. In some one or two the testicle appeared somewhat smaller in size, but in shape and appearance they were natural. All had plenty of hair about the face, chest, arms, pubis, and legs; so that they did not differ from other men but for the female dress and manners, which they ape to perfection, although sometimes overdone. The hair of the head is put up like women, well oiled, combed, and thrown back, tied into a knot, and shelved to the left side, sometimes plaited, ornamented, and allowed to hang down the back; the whiskers, moustache, and beard closely shaven. They wear the *chólee* or short jacket, the *saree* or petticoat, with an apron or scarf which they wrap around the shoulders and waist, and put on an abundance of nose, ear, finger, and toe rings. They cultivate singing, play the *dhole*, a country drum of an oblong shape, and attitudinize. They go about the bazaars in groups of half-a-dozen or more singing songs with the hope of receiving a trifle. They are not only persistent but impudent beggars, rude and vulgar in the extreme, singing filthy, obscene, and abusive songs to compel the bazaar-men to give them something. Should they not succeed they would create a fire and throw in a lot of chillies, the suffocating and irritative smoke producing violent coughing, etc., so that the bazaar-men are compelled to yield to their importunity and give them a trifle to get rid of their annoyance, as they are not only unable to retain their seats in the bazaars, but customers are prevented from coming to them in consequence. With the *douceur* they get they will move off to the next bazaar to resume the trick. This game they pursue with impunity, but I am not aware if they still continue to carry it on under the ken of the Mofussil police and with the operations of the Indian penal code. While such were the pursuits in the day, at nightfall they resorted to debauchery and low practices by hiring themselves out to a dissipated set of Moslems, who are in the habit of resorting to these people for the purpose, whilst they intoxicate themselves with a preparation termed *majoon*, being a confection of opium and a kind of drink termed *boja*, a species of country beer

manufactured from *raji*, which also contains bang; in addition to this they smoke bang. The Higras are met with in most of the towns of southern India, more especially where a large proportion of Mussulmans is found.

## DISCUSSION.

Dr. A. CAMPBELL said that the system of having eunuchs in charge of the harems of Mohammedan princes was general all over India. The greater number of these eunuchs were Africans, and many of them attained to high positions of trust at native courts, as the Kojahs of Southern India are said to do by Dr. Shortt. They reach India mostly by way of the Persian Gulf. With reference to the operation of castration described by Dr. Shortt, Dr. Campbell said that at an early period of his service in India he was attached to the British embassy in Nipal. This was an independent state in the Himalaya, on the northern frontier of Bengal, and it was governed under the Hindoo law, by which the extreme penalty in cases of adultery with a woman of the highest castes by an outcast was castration, by the removal of the whole genital organs. The operation in these cases was performed with a common knife, the whole genitals being removed at one cut, and the criminal left to live or die unaided. On almost every occasion of these executions some of the survivors used to find their way to the British residency, where they received surgical aid and always recovered. Those who survived the hæmorrhage after the operation and sought refuge in their homes, Dr. Campbell was told, frequently died from unrelieved vesical inflammation and urinary obstruction.

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The following paper was read by Dr. Carter Blake :

*The PRIMORDIAL INHABITANTS of MINAS GERAES, and the OCCUPATIONS of the PRESENT INHABITANTS.* By Captain R. F. BURTON, F.R.G.S., H.B.M. Consul, Trieste.

THE following papers are translated from the meritorious labours of M. Henriquez Gerber upon "Minas Geraes," the great central province of Brazil. Such monographs are of double value to the student, firstly, because they are written by men who have thoroughly studied the subject; secondly, because they serve as a standard of comparison between the present and the past.

## COMPARATIVE ANTHROPOLOGY (ETHNOLOGY).

M. Gerber begins this chapter with a resumé of the paper upon the autochthones or primordial inhabitants of Brazil, presented in 1842 to the "Instituto Historico-geographico"\* of Rio de Janeiro by the distinguished naturalist Dr. P. Lund.

\* Vols. 4 and 6. It is an abstract of his work "Blik paa Brasiliens Dyre-  
verden," etc.



The *Homo Americanus* cannot be derived from the Mongolian. The narrowness and flatness of the cranium and facial angle, the prominence of the zygomatic bones, and the form of the maxillæ and the orbits give to the former a greater animality and thus show its inferiority.\* Degeneracy will not explain community of origin. Firstly, the world proceeds from the imperfect to the perfect, and such retrogression is contrary to the course of nature. Secondly, if this hypothesis were true, the older the type the greater should be the physical resemblance between the races; but the calvariæ of Lagoa Santa prove the contrary.

The discovery of human bones of both sexes, entirely preserved and partially petrified, in fact, truly fossil bones, mixed with those of gigantic and extinct animals, suffices to prove the antiquity of man in Brazil. The skulls show all the cranio-logical characteristics of the modern "Red race," especially the extraordinary depression of the coronal region, which in some specimens almost entirely disappears. On the other hand, the incisors are remarkable for having a plane and triturating superficies instead of a transversal cutting edge; this peculiarity is not found in any existing race, and only in the mummies of ancient Egypt. The similarity of the stone hatchets and implements of Brazil† with those of Europe, and the analogies of the Mexican monuments with those of Hindostan and Egypt, are undeniable points of contact between the early inhabitants of both hemispheres.‡

"We see then," concludes Dr. Lund, "that America was already peopled before the first ray of history had beamed upon the horizon of the old world, and that the oldest types belong to the same race which inhabited the continent at the epoch of its discovery."

The actual population of Minas, as of all Brazil, is composed of three elements, viz.—American, improperly called

\* So in some ancient Mexican monuments the cranium retreats above the superciliary crests. This is supposed to be the work of art, but Dr. Lund has proved that upon the American continent there existed a race normally exhibiting the abnormal configuration.

† Dr. Lund found with the fossil bones a hemispherical piece of amphibole (hornblende), about ten inches in circumference, and smooth in the plane face, which served to bruise seeds or other hard substances.

‡ Here our author goes too fast. There is every reason to believe that in the most ancient ages Europeans and Asiatics were shipwrecked upon the eastern and western coasts of South America, and it is highly probable that these foreigners introduced the civilisation, of which curious remains existed at the time of the official discovery. Legends to this purport are found amongst all the tribes from Brazil to Peru. The stone implements were probably independent inventions, the offspring of necessity, and the similarity of form must arise from the similarity of men's brains. But such analogies will hardly justify the "ergo" which the author gives to Dr. Lund. The antiquity of the Brazilian would be the theoretical deduction from the early formation of his habitat.



"copper-coloured;" Caucasian, or white; Ethiopic, or black. The Portuguese family is the base of population, and upon it have reacted the two others in the ratio of their organisations, physical and moral, and in conformity with their numbers, power, and social position.

As in the United States the savage has retired before the advance of civilisation, the only remnants in Minas now hold the virgin forests of the River Doce and the Jequitinhonha. As usual, anthropologists divide them into two great different nations, which in the seventeenth century fought for the possession of the litoral.\* These are the Tapuyas (Tapuias) and the Tupis.

The Tapuyas, driven from their ancient seats by the Tupis, a people coming from the south, took refuge in the far interior (Sertão) of Brazil. After some years sundry divisions of the former again appeared, under different names, upon the seaboard. Such, for instance, were the terrible Aïmorés,† with the Abatiras and Potaxós, their confederates, now settled in the Serra des Aïmorés, and the Goyatakazes, who hold lands in the actual municipalities of Campos and São Fidelis. This reaction would of course drive the Tupi family further to the south. The modern descendants from the Tapuyas are:—

1. The Machacalis, a small but agricultural and industrious tribe living on the Rebeirão dos Prates of the Jequitinhonha River (Aldeia or "Indian" village do Ferrancho).‡ Like those below, they are probably descended from the famous Aïmorés.

2. Macunis and Malalis, whose remnants are settled (*aldeiados*) and cultivate the soil near the Alto dos Bois and the valley of the Upper Mucury. The Malalis are now reconciled to their ancient enemies, the

3. Botocudos, still the most powerful of the aboriginal natives, and which have hitherto resisted the exterminating wars of the Portuguese and attempts to civilize and domiciliate them. The true name was "Endgerekmung" (Captain Guido Marlière§

\* This is clearly within the range of authentic history, which informs us that the wild men of America in that day, like the African savages of the present age, were always engaged in pushing their way to the sea-board. The negro's object is to trade direct with the white man; the American probably sought a more amene climate and plentiful diet. These would tend to enervate him and thus prepare his destruction by a stronger race.

† I would rather believe, with the old authors from whom Southey borrowed his materials, that the Aïmorés were a distinct nation from the Tapuyas and the Tupis. They come, it has been conjectured, from the neighbourhood of the Araucanians of Chili.

‡ Possibly for "Ferrancho," a medley of people.

§ Captain Guido Marlière (?) was a French officer in the local service who did much by kindness and consideration towards taming the savages of the Rio Doce. He is often mentioned by travellers of the last generation.

writes it "Crakmun"),\* Botoeudos meaning men with bunge in their lips, from the Portugese "botoque." There are several tribes, some tamed, others wandering wild in the wooded valleys of the rivers Mucury, Doce, Tambacury, Urupucá, and others. They are all greatly inferior in intellect to the Machacalis and Malalis. The chief clans of this nation now domesticated are,

A. The Naknenuks (= hill men), a confederation settled in the valleys of the Upper Todos os Santos, Poté and Mucury; in the villages of Capitão Felipe, in the forest of São João; of Capitão Poté, on the banks of the Poté rivulet; and of Capitão Timotheo, near the head waters of the Todos os Santos.

B. The Pojichá tribes, settled three leagues below Philadelphia.

C. The Giporok, on the banks of the lower Urucú and Mucury.

D. The Bakues, on the left bank of the Mucury.

E. The Aranans, on the banks of the Sorobim and Sassuh rivers.

4. The Coroados, direct descendants of the Goyatakazes, whose last remnants are domesticated and mixed with the whites in the south-east of the province, as near Aldeia da Pedra, in that of Rio de Janeiro.

The descendants of the victorious Tupis are:—

1. The Puris,† once a powerful people, and deadly enemies of the Coroados. They are now reduced to a few families, mixed up with the gross of the population in the municipalities of Ubá, Muriahé, and Leopoldina.

2. The remnants of various tribes who, domesticated and thoroughly mingled with the actual population, still exist in some of the western municipalities. Such are the Bororós, originally from Mato Grosso, who in the middle of the seventeenth century were subdued by the Paulista Antonio Pires de Campos. He enabled them to resist their enemies, the Cayapós (Caiapós), by settling them in the villages of Sta. Anna, Lonhozo, near Uberaba, and Das Pedras, near the existing city of Bagagem. Remains of the Cayapós are still found in the extreme north-west of the province, on the banks of the Carunhanha and the Urucuia rivers, tributaries of the great Rio de São Francisco. The Araxás are settled about the modern Villa de Araxá, which borrowed from them a name.

It is impossible to obtain certain information concerning the present number of the Indians. The settled (*mansos*) are included in the general table of population, and M. Gerber is persuaded that the wild men do not exceed 8000 head.

\* "Crak," in the language of the Botoeudos, means iron.

† Also called Purus, and celebrated for atrocious cannibalism. The word means "man eater." They were found on the southern river till 1838.

\* The free population numbers, as a rule, four-fifths of the inhabitants.\* This is also to be observed in other central provinces, whilst in Rio de Janeiro the cultivation of coffee and cane causes the servile almost to equal the free. The same is the case in the municipalities to the south-east of Minas, whence coffee is largely exported.

The following tables are based upon the interesting statistical labour which Major Ling Maria da Silva Pinto presented in 1855-6 to the Provincial Government, and the subsequent additions have been supplied by references to the respective authorities. The province of Minas had in the year

	Souls.	Increase.	
1776.....	319,769		according to Pizarro.
1786.....	394,040	.....2·1 per cent.	” map of that year.
1821.....	514,797	.....0·8 per cent.	”
1823.....	563,671	.....4·7 per cent.	”
1847.....	908,816	.....2·0 per cent.	” Silva Pinto.
1854.....	1,081,909	.....2·5 per cent.†	”
1856.....	1,219,272	.....6·1 per cent.	”

Thus during the eighty years between 1776 and 1856 the percentage of total increase was 1·70 per cent. per annum, and the absolute increase was 899,503.† It is difficult to explain the prodigious

\* As the notes on climate (See Highlands of the Brazil) show, the temperature is not favourable to the negro; the land is too high, the air is too rarified; he finds white labour to compete with him, and, as a rule, he is not a favourite in the fishing and cattle-breeding countries. Hence of late years the slave population of Minas has not increased.

† Thus divided between 1854-61: Comarca of Villa Rica ... 78,618 souls.

"	Sabará	...	99,576	"
"	Rio das Mortes		82,781	"
"	Serro Frio	...	58,794	"

‡ From 1776 to 1786 the average increase was 2·10 per cent. per annum; from 1786 to 1821 it was 0·80; from 1821 to 1823 it was 4·70; from 1823 to 1847 it was 2·00; from 1847 to 1854 it was 2·50; from 1854 to 1856 it was 6·10.

To these figures, given by M. Gerber, I would add a few taken from other authors.

In 1808 Baron von Eschwege made the population of Minas to represent 423,049 souls.

In 1813 the "Patriota," quoted by Southey, gave 425,281 as the number of communicants in the diocese of Marianna, which then contained two-thirds of the provincial population.

In 1864 the "Almanak" of Minas gives 1,620,190.

In 1865 the Presidential Relatorio fixes it at 1,500,000, of whom one-third were slaves, to 20,000 square miles. This would be about 1-36th of the population ratio of France, and 1-50th of Holland.

In 1866 the Presidential Relatório of the same year, gives as an approximation 1,620,190 souls. Also Lieutenant Eduardo José de Moraes offers the estimate of 1,500,000 souls; about one-sixth of the general population of the empire.

Thus, in that year the population of Brazil almost equalled that of the western states of North America in 1860. Ohio, Indiana, Illinois, Michigan,

advance made by the population between 1854 and 1856. Admitting, however, that between 1854 and 1861 the total increase was 10 per cent., and adding to this the colonists introduced by the companies "União e Industria" and "Mucury," we may calculate for the year 1861 a population of nearly 1,192,000 souls.

#### OCCUPATIONS OF THE INHABITANTS.

##### *Industry and Productions.*

"S'il existe un pays," says M. de St. Hilaire, "qui jamais puisse se passer du reste du monde, ce sera certainement la province des Mines." Hitherto the dissemination of inhabitants over a vast tract of land, and the want of good roads, have interfered with the march of improvement. As usual when slaves co-exist with free men, the latter are prejudiced against agriculture, holding it to be a servile toil; and the sudden arrest of the import slave-trade threw back production to a considerable extent. As, however, numbers increase, and communication enlightens men's minds, this aversion to an honourable occupation will vanish, and in due time the vast riches which lie in the bowels of the wealthy Mineiro soil, in the woods, and on the prairies, shall be turned to the use of mankind.

It is impossible to obtain exact statistics touching the number of men employed in the various branches of labour. We shall not, however, be far from the truth when, of the whole male population of free adults above eighteen years of age, we give 2 per cent. to the scientific and liberal professions, civil, military, and ecclesiastical, including also the employés of Government, 9 per cent. to mining industry, 11 per cent. to various manufactures, 26 per cent. to commerce and to the transport of goods, and 52 per cent. to agriculture and stock-breeding.

#### TITLES TO LAND.

Though by far the greater part of the province is uncultivated, the land is private property, and common lands (*terras devolutas*) are limited to the virgin forests and wild neighbourhood of the rivers Doce, Mucury, and others in the cantons (*Camaracas*) of Jequitinhonha, Indaia, and Paraná. The titles to these lands were acquired either by settling upon them (*per posse, squatting*) or by donation charters (*Cartas de Sesmaria*), or it was granted in

Wisconsin, Minnesota, Iowa, Kansas, and Missouri, then numbered 9,140,390 souls, including, however, only 115,619 serviles. It exceeded that of the southern states. Texas, Louisiana, Arkansas, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina, and Tennessee, numbered in 1860, a total of 7,649,660, of whom 4,574,429 were free, and 3,075,231 were slaves.

certain portions (*concedida em datas*), especially in mines, by the governors of Rio de Janeiro, São Paulo, Goyaz, and Bahia, before Minas Geraes rose to be a province.

In the old times grants of land were very unequal, ranging from a minimum of 60 square braças\* to a maximum of 48 square leagues. The area of the whole province is thus distributed:—

Charters (Sesmarias), in square leagues of $\frac{1}{16} = 1^\circ$	5911
Grants (datas) given by the governors	2500
Squatting and arbitrary possession	9000
Common lands and those occupied by the Indians	2589

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Total square leagues . . . 20,000

#### MINES.

The province derives its name from the gold and diamond washings which in early days occupied the greater part of the population. This industry has fallen off during the last forty years, when wages and rations began to have a higher value. Moreover, "pick and pan" can be no longer used, and expensive processes of extraction must take their place.† Besides diamonds, precious stones of different kinds, and gold, the only minerals now worked are iron, lime, and saltpetre.

Diamonds were discovered by Sebastião Leme do Prado, on the Ribeiro Manso, a tributary of the Jequitinhonha, in 1725, a little after the first gold-diggings were opened in the north of the province. They were not recognised as valuable till 1728, when the Netherlands consul at Lisbon saw a parcel brought there on trial by Bernardo da Fonseca Lobo. A royal letter of February 8, 1730, authorised the then governor, D. Lourenço de Almeida, to declare the diamonds crown property, and to demand from the washers a poll-tax of 5 \$ 000, which was afterwards gradually raised to 230 \$ 000 per annum — in those days a large sum. Another royal letter of October 30, 1733, established a superintendent of diamonds, and marked out as the "Diamantine District," a territory about 10 miles in diameter, circling the village (*Arraial*‡) of Tejuco, now the "Cidade Diamantina." In 1735 the Government monopolised the diggings, and farmed

\* There are 3000 braças to the usual league, which would reduce 5911 square leagues to 4257 leagues of  $1\text{-}26^{\text{th}} = 1^\circ$ . D. João VI was the first who allowed strangers to hold sesmarias.

† Reichenstein's dry system of gold extraction by chlorine is, I believe, still unknown to Minas.

‡ In old Portuguese this Arabic corruption means a royal camp—head quarters. The original establishments in Minas Geraes took the name probably on account of their military organisation, and the necessity of fortifying stations against the "Indians."



them to João Fernandes de Oliveira for a yearly sum of 120,000 \$ 000, and after 1740 for 138,000 \$ 000. In January 1749 the privilege was conferred till 1753 upon Felisberto Caldeira Brant, and the latter was succeeded by the same Oliveira from 1753 to 1771. From January 1, 1772 the Government took the works into their own hands, until the law of October 25, 1832 threw them open to the public, establishing a certain tax. The law of September 24, 1845 created a new inspector-generalship of the Diamantine lands.

The quantity extracted has been considerable. In 1732 the fleet of Rio de Janeiro carried 1146 ounces to Lisbon. In the days of the contractors they sometimes washed more than 12,000 oitavas\* (each = 55·351,340 gr. avoir.) per annum. Between 1772 and 1794 the figures show 48,547 oitavas, besides 449,825½ octaves of gold simultaneously washed. Baron von Eschwege (*Pluto Brasiliensis*, p. 418) calculates from official documents that between 1730 and 1822 the extraction was registered at 165,760½ oitavas, besides the clandestine workings, which produced at least an equal quantity.

Diamonds are also found in other parts of the province, as in the southern watershed of the Serro Frio, the Serra de Grão Mogol, and principally in the streams flowing from the Serra da Mata da Corda. From one of these, the Abaieté, came in 1800 the "Regent" diamond of the Portuguese crown, then valued at 7500 millions of francs. About twelve years ago (1863) appeared in the municipality of Patrocínio, a large diamond digging. Here was presently built the village called "Bagagem Diamantina," which already in 1854 had 2815 hearths (fogos),† with 13,554 souls. In 1856 it was raised to the rank of a town (*Villa*), and it is now one of the most prosperous cities in the province. Amongst a number of valuable stones drawn from these grounds was the *Estrella do Sul*, weighing 18 oitavas, and now valued at £250,000.‡

There are actually in the province six inspectorships of diamond districts, namely, at Diamantina, Serro, Conceição, Grão Mogol, Patrocínio, and Uberaba, created by the decree No. 665 of September 6, 1852, which carried out with some changes the resolution No. 374 of September 24, 1845. Each district is divided into lots, which are farmed out. The price of stones, at the "Regulation of the Vintem,"§ is from 440 \$ 000 to 480 \$ 000 per octave (now nearly doubled).

\* The oitava is about 17·44 carats.

† A truly archaic form of census, borrowed from the "Indians," who thus mustered their braves.

‡ The author might safely have added another cipher.

§ The vintem is the unity of measure = 2 grains, or half a carat. The "regulation of the vintem" means that every stone in the octave should average a vintem, or half a carat.

Besides diamonds, the province has produced the euclase, the chrysolite,\* the aqua-marinha or beryl, the garnet, and especially the (white) topaz. All are however at present neglected on account of the low prices in the markets of Europe. The aqua-marinha (beryl) weighing 15 lbs., and presented in 1806 to D. João VI, was found in the Ribeirão dos Pingos, a tributary of the Mucury River. The so-called "diamonds" found (1861) in the River Matipó, in the district of Abre Campo, were chrysolites, euclases, amethysts, topazes and other stones.

Gold was discovered in 1672 by Manoel da Borba Gato† upon the lands of Sabará. The "find" becoming public, hosts of adventurers, especially Paulistas, flocked to the lands lying near the range which runs north of the Stacohemi. In 1699 Antonio Dias, of Taubaté, found the rich diggings of Ouro Preto. Important settlements sprang up, and as population increased arose the troubles known as the Guerra dos Emboabas,\* between the Paulistas and the Portuguese from Europe. These disturbances were at last put down in 1709 by the governor, D. Antonio d'Albuquerque Coelho de Carvalho. From that time the quinto, or fifth, due to the royal treasury, was carefully collected, and superintendentships of gold and smelting houses (*casas de fundição*—gold foundries†) were established in Villa Rica, Sabará,

\* The ancient chrysolite was called topaz, from the eagerness with which it was sought (*topazeon*) in an island of the Red Sea (Pliny, 37-8). The topaz in Minas is generally yellow, turning red when heated, and positively electric on one side whilst the other is negative. According to Mr. Walsh, the "topaz of Germany becomes white by a similar process, proving that the colouring matter of both is different." (Vol. ii, p. 188).

† The Almanak (1865) declares it proved by ancient documents that only in 1700 gold was discovered by Borba Gato, on the banks of the Rio das Velhas. But in 1573, a certain Sebastião Fernandes Tourinho washed the precious metal in the Sertão da Casca, an Indian village where the modern Cuiethé (Cuyeté) is. Also in 1693 Antonio Rodriguez Arzão, of Taubaté, found gold at Cuiethé, and showed three octaves to the Capitão Mór of Espírito Santo. Borba Gato, after sundry murders, fled to the Rio Doce; between 1695 and 1705 he was pardoned by the governor, Arthur de Sá e Menezes, on condition of his showing the "faisqueiras" or washings of the Rio das Velhas.

‡ The Portuguese called the white Brazilians "Caboclo," i. e., scraped, peeled, because the red men removed beards and eyebrows. The Paulistas retorted with "emboaba," poultry feathered to the feet, alluding to the breeches and hose of their rivals. This word is now forgotten, whilst caboclo is the general term for a cross with the red blood, as opposed to Bugre (lit. slave), a pure "Indian" in his wild state.

§ Each had a staff of fifteen or sixteen officers, assayers, smelters or founders, and writers. From the liberal measures of D. João VI, who permitted foreigners to expend capital in mines, resulted four decrees of the Imperial Government, two for Minas Geraes, and two for Mato Grosso. These orders granted concessions enabling strangers to possess mines and lands in Brazil, not only during the life-time of the grantees, but also during the existence of the companies. A decree of August 12th, 1825, restricted this to a term of twenty years. Mr. Edward Oxenford was the earliest concessionist in Minas Geraes. (Walsh, ii, 116).

and the towns subsequently built. Innumerable mines were afterwards discovered in different parts of the province. At present the precious ore is brought principally from the municipalities of Sabará, Caethé, Sta. Barbara, Marianna, Ouro Preto,\* Itabira do Mato-dentro, Conceição, Serro, Diamantina, Grão Mogol, Minas Novas, and S. José d'El Rei.

According to authentic calculations, the total of the royal quint between 1700 and 1820 was 29,235,405 octaves = 7137½ arrobas (each = lbs. 32·3876). Calculating the octave at its then price of 1 \$ 500, the tribute to the Portuguese crown was £4,400,000 (= 114 millions of francs), and that which left the country, including the contraband, was £25,000,000 (= 700 millions of francs). Since the Declaration of Independence the production has greatly fallen off.†

The gold-crushing works in the province are about 100. The most important of them, and the largest industrial establishment is the "St. John d'El Rey Mining Company," at Morro Velho, 2½ leagues from Sabará. Established in 1830, it worked for some time near the city of S. João d'El Rei, and then began upon the present lands. The auriferous veins (*vetas*) are pyrites injected into argillaceous schiste, and dipping to the south-east 45°. According to the director's reports, Morro Velho extracted during 1861 96,612 tons of mineral. Of these, 24,710 were rejected as poor, and the remaining 71,902 gave 499,064 octaves of gold = 6·94 octaves per ton. Adding to this the 26,690 octaves given by the "refuse works" (*engenhos da praia*), we have a total of 525,754 octaves, the greatest annual benefit then known. Between March 20, 1861, and March 20, 1862, were extracted 543,637 octaves, bearing a clear profit of £96,769 Os. 6d. and the dividend was ninety shillings per share of £20 (£15 paid up). During that year the mines employed 486 male slaves, 311 Brazilian, and 52 English workmen. In the mills (*engenhos*) were fourteen Europeans, 50 Brazilians, 96 male and 357 female slaves, a total of 1366 souls.

The principal mines explored at Morro Velho are those called the Cachoeira and the Bahú. The former was 1120 palms long in the horizontal section, 13 to 85 palms broad, and 1190 palms deep in March 1861, which became 1480 in February 1862.

\* "Black Gold," where, according to Mr. Walsh, the precious ore has an alloy of silver, which oxidises by exposure. But iron, pure and degraded from mica slate, almost always accompanies gold in these diggings, and the oxide is found sufficient to tarnish the precious metal.

† Between 1832 and 1860 an improved system of working gave only six arrobas. According to the geography of Sr. Pompéo, between 1720 and 1820, the imperfect working gave 146,000,000 of octavas (= 30,647 arrobas of gold). During that time Mato Grosso, Goyaz and S. Paulo together produced only 73,000,000 of octaves (= 17,647 arrobas).

The Bahú is about the same size.\* Both have six inclined planes for hauling out and transporting the ore. In 1859 the mine employed 274 free Brazilians and foreigners, and 407 slaves, a total of 681 men. Amongst these were 242 borers (broqueiros), who in 311 working days extracted 89,000 tons of metal; 6119 tons were rejected as poor, and the remaining 82,881 were crushed in six stamping-mills and machines, worked by 134 hands. In the spalling works, the mills, and the amalgamation departments, during this year, were employed 9 Europeans, 21 male Brazilians, 24 women ditto, with 79 male and 254 female slaves, a total of 387. For a mining population the work-people are extraordinarily healthy. In 1859 the percentage of deaths was 2·76, and not including accidents only 2·14.

The average yield per ton was 3·9 octaves† = 215·9 grains. To each pounded ton, 70 lbs of mercury was employed, and the loss per cubic foot of amalgam was 0·58 ounces, about equal to 6 per cent.

In 1859 the total produce was 342,885 octaves, at an expense of 115,808\$067, that is to say, 0\$357 per octave. The capital of the shares paid up since 1830 was £128,400, which in thirty years (to 1860) produced a net revenue of £466,874 6s. 1d., besides which the works were valued at £100,000. The last dividend was £2 per share of £15—nearly 14 per cent.

The "Associação Nacional Brasileira de Mineração" (Cocaes Company) has explored since 1829 the mines of Macaubas, Cuiabá, and Cocaes. It has, however, been unfortunate, and its capital of 3,600,000\$000 (£360,000) was exhausted without giving a dividend. During the thirty-one years of its existence it extracted gold to the value of £150,000. Its only mills now employ 12 hands, whilst in the mines 21 free people and 21 slaves compose the total. In 1860 its expenses rose to 9,000\$000 (£900), and it hardly returned 693½ octaves of gold.

All the other establishments are upon a small scale. The ancient companies of S. José d'El Rei, Prados, Gongo Socco, Itabira do Campo, and others, have ceased to exist.‡

\* In December 31st, 1866, the Bahú mine had 207 fathoms on the dip of the lode, and a length of excavation of 50 fathoms; in the Cachoeira these figures were 246 and 66. The average breadth of the Bahú was 44 feet, of the Cachoeira 29 feet; the minimum was 11 feet and the maximum 90 feet: There were 6 to 7 inclined planes.

† In 1829 Mr. Walsh calculated that a cubit foot of dirt (= 110 lbs.) gave 3 to 8½ oz. of gold. At Morro Velho, in 1866 the yield had reached 9 to 10 oitavas per ton. The amalgamation was at the ratio of 1-60th of mercury per ton ore, and the loss was half an ounce per cubic foot of amalgam. The total produce of extraction in 1866 was 625,654 oitavas. The expense of extracting it was 4s. 6d. per ton treated, and 2s. 6d. and 3s. 8d. per ton received from the mine. The cost of extracting the gold was 228 reis to 5½d. per oitava.

‡ Those of Marianna and Passagem had not begun when the author wrote.

Platina,\* silver, copper, and lead. All these are now neglected. Platina is found mixed with gold in many mines belonging to the municipalities of Marianna and Do Serro. Lead, generally argentiferous, exists in the vicinity of Sete Lagoas, Abaieté, and other places; and the Government does not work the rich galeniferous ores of Abaieté. Copper exists abundantly in various parts of the municipalities of Sta. Barbara, Serro, Sabará, and Indaiá. At one time it was highly thought of.

Iron is scattered over the whole province, and should be one of its chief exports. It was first extracted in the beginning of the present century by Manoel Ferreira da Camara Bitancourt. The works actually in use are now above 90, and are limited to the cantons of Ouro Preto, Piracicava, and Serro. The principle is that of M. Jean Antoine Monlevade, a few leagues to the south of Itabira de Mato-dentro, which in 1863 employed 96 slaves, and which annually produces 6000 arrobas of worked iron. There are others in the western municipalities, as Piumhy and Patrocínio, and between Ouro Preto and the city of Itabira the works employ about 2000 hands, and produce annually some 150,000 arrobas. None of these cast their metal with high-chimneyed air furnaces (*Fornalhas altas*), but make bars or worked iron in the "Stück-ofen" or Catalonian forge.† The combustible is charcoal.

Limestone is quarried in many parts of the province, and there is a quantity of marble for which some day use will be found.

Salt and saltpetre. The first effervesces from the ground in the municipality of Januaria, on the banks of the Rio de São Francisco: it also appears on the banks of the River Mosquito, in the arrondissement of Grão Mogol. Saltpetre in considerable quantities penetrates into the clay strata. The municipalities of Santa Luzia, Montes Claros, Piumhy, and Formiga supply the greatest quantity.‡

Besides these minerals there are large deposits of building-stone, clay fit for tiles, bricks, pottery, and even porcelain; true kaolin, in the municipality of Marianna; steatite (vulg. called Pedra de Sabão = soapstone), well fitted for pots; slate, plumbagine (plumbago, carburet of iron), for pencils and crucibles (*cadinhos*); pumice; sulphate of iron, popularly known as "Caparrosa," and ochres of different colours.

\* According to some travellers palladium and tellurium (?) have extensively been mistaken for platina.

† It is the rudest possible contrivance; yet with the aid of charcoal fuel it turns out iron which equals, and has even excelled, English steel.

‡ There is an immense importation of salt into this province. Sabará alone (14 leagues from the capital) takes, per annum, 30,000 bags, each of 3½ kilos. The value is there 7\$000 per bag; but it gradually rises at Curvallo and the Barra do Rio das Velhas to 16 dollars.



## AGRICULTURE—STOCK-BREEDING.

Agriculture, which might embrace the produce of the temperate and the tropical zones, is now confined to the produce consumed by the country, such as the cereals—maize, rice, wheat,\* and rye—the latter two in very trifling quantities; fruits, as bananas, limes and sweet limes, peaches, jaboticabas, pineapples, quinces, guavas, etc.; vegetables, as beans, manioc, sweet potatoes, and yams; with coffee, tobacco, cotton, and Palma-Christi. The vine and indigo are also cultivated, but to a very small extent.

Pigs, goats, and the minor domestic animals are found all over the country; the black cattle, mules, and horses are bred most in the campos or prairies of the west; sheep are few, although the plains offer good pastures. Apiculture progresses, but the utilisation of the silkworm is still in embryo.

Most of this produce is bred for consumption in the province, and thus the commerce is almost exclusively internal. The price and difficulty of transport prevent exportation. The yearly value of provisions here produced may be £5,000,000. Only the southern municipalities, whose communications are better, can afford to export, and the articles are usually those that combine lightness and value. Such are

1. Coffee, which flourishes chiefly in the municipalities of the Rio Preto, Parabybuna, Mar de Hespanha, and Leopoldina; less in those of Pomba, Ubá, and Muriahé. The total production, home consumption included, rises to a mean annual average of 1,300,000 arrobas.†

2. Tobacco, of which the best is grown in the municipalities of Baependy, Campanha, Christina, Itajubá, Lavras, and Pitanqui. The annual produce may be 400,000 arrobas, of which the province exports about 250,000.

3. Cotton was formerly the chief of Mineiro products, and was much cultivated in Minas Novas; it then declined to the wants of home consumption of 60,000-70,000 arrobas, of which about 23,000 are exported in woven stuffs strong and good.

4. Cane was also grown in many places for sugar and spirits. It is mostly consumed at home, and the exportation of sugar and hard brown cakes (*rapaduras*) hardly reaches 100,000-170,000 arrobas per annum.

\* We are told that in 1829 several Comarcas grew considerable quantities of wheat. It was the same in the southern part of the old S. Paulo Province, now Paraná.

† The general average of the annual export of the province is as follows: coffee and tobacco 16,000,000 kilogrammes; maize, beans, rice, and farinha, 6000 litres; worked cotton 2500 metres; black cattle 150,000 (in 1861, 136,500) head; poultry about the same; cheeses 500,000; charcuterie 3,000,000 kilogrammes; 7000 sets of saddles, harness, etc.; hides, raw and prepared, both in considerable numbers.

5. Black cattle is best bred in the Prairie municipalities to the north and west of the Serra da Mantiqueira. These places send annually to the capital (a Côte) about 70,000 head.

6. Sheep form an annual exportation of 15,000 head.

7. Pigs are bred in great numbers, pork being a favourite food. The number annually fattened is nearly 4,000,000, of which 50,000-80,000 head may be exported, with 250,000 arrobas of lard (*toucinho*).

The number of agricultural and breeding establishments in the province exceeds 20,000.

#### COLONISATION.

There are three great nuclei of colonies, besides a number of foreign labourers, chiefly from the Açores Islands, who are scattered over the properties in the southern municipalities, viz.:-

1. Colony of Mucury. The Mucury Company (having opened a road from Santa-Clara, the terminus of steam navigation on the River Mucury, and the village of Philadelphia, founded by the same body) began in 1854 a colony for Brazilians and strangers. The first German detachments arrived in 1856, but a variety of difficulties, endemic disease, and discontent arrested progress. In the middle of 1859 the colony counted 591 souls, not including minors of five years, and the total population of the Philadelphia district was valued at 3500 souls. The land is of 154 lots of 150,000 square fathoms, measured, marked out, and sold to the colonists—42 lots of 4000 square fathoms\* for country houses (*chacaras*), and 172 of 5000 for houses in the village of Philadelphia. It possesses 12 sugar-works, 10 mills, 50 crushers (*monjolos*) for making manioc-meal (*farinha*), 5 smithies, and 2 cart-making establishments. The annual production, which, however, is all consumed by the colonists, is valued at £20,000. Another unprosperous colony, "Nueva Milano," was established by an Italian, M. Monteggia, under the auspices of the same company, on the banks of the Ribeirão de S. Matheos, three leagues below Santa Clara.

The Imperial Government, in virtue of the contract dated March 1, 1861, took over charge from the Mucury Company, and proceeded to make many improvements. The colony now numbers 487 souls.

2. Military colony of the Urucú. It was created by Imperial Decree of May 24, 1854, with the especial object of protecting the new settlers in the woods of the Mucury River, and it was planted at the confluence of the streams Urucú and Das Lages. The *personnel* numbered hardly a major director, 4 officers, and 26 privates (*praças*), till May 10, 1855, when it was reinforced

\* These were "Aforado," i. e., hired from the Camara.

with 28 families from Madeira, each receiving 40,000 square fathoms of land. It actually contains 288 persons, of whom 113 are Portuguese, 94 Belgians and Swiss, and 81 Brazilians. Of 793½ alqueires\* of cultivable land in the colony, about 91½ are planted with produce of the country.†

3. Colony of D. Pedro Segundo. It was founded with assistance from Government by the "Company União e Indústria" on July 12 1858, when the first German colonists arrived. Early in 1860 it contained 1112 souls, and early in 1861, 1144. In 1861 11 died, 44 were born, and 6 came from Europe; thus early in 1862 the colony contained 1183 persons—654 males 529 females. These figures, however, include 250 who, with or without permission of the directory, are absent from the colony. There are 200 farms (*prados*) of 20,000 square fathoms each, and half of them are planted with cereals and other food for country consumption. At the same time 123 families and 8 unmarried men were occupied in cultivating their grants (*prazos*); 60 persons were simultaneously working at the roads of the colony, 180 were in different works of the company, and 28 persons were in private service. In 1861 the company paid the colonist labourers for various works 142,413\$839 (= £14,200). In the same year the supplies, native and foreign, furnished to the colony amounted to 20,356\$840 (= £200‡).

#### MANUFACTURES AND FABRICS.

These, for want of hands, are at present necessarily in a backward state. The following are the principal branches, viz. :—

1. Preparations of vegetable and animal substances, as coffee, cane (for sugar and spirits), tobacco, indigo (on a very small scale), castor oil, sweets, and quince jams (*marmaladas*), "Indian" (*i.e.*, Chinese) tea, Paraguay tea (*congonghas* or *mate*), manioc-flour, maize-meal (*fuba*), and sediment flour of manioc

\* Each alqueire is = 10,000 braças (Brazilian fathoms), usually set down at six acres, English.

† In 1864, according to the Provincial Relatorio, it was directed by the ex-ensign Pedro Viegas de Menezes, who commanded five soldiers. The population was represented by 356 souls, of whom the colonists proper were 165 Portuguese, 97 Dutch, 25 Brazilians, 13 Chinese, 11 Belgians, and 11 Germans, total 322. Of these 178 were males, and the rest females; 11 were widows and widowers, and 191 unmarried, including 172 minors, of whom 5 were orphans. The colony is purely agricultural, and supplies coffee and cotton, tobacco and especially sugar cane, of which rum and rapadura bricks are made. The rest is composed of maize and manioc, rice, beans, and sweet potatoes.

‡ Since the latter part of 1867 this colony has greatly improved, and has received considerable additions. Like the rest, however, it is established upon a wrong system, a kind of sickly exotic nurture being made to take the place of the healthy natural growth. In a future work, I shall revert to the wasteful, useless process of such immigration to the Brazil.

(*polvilho*); besides saw-woods, butter, cheese, bacon, etc. An approximative calculation gives us in the province 300 saweries, 4503 works for sugar-making and distillery, 250 coffee-milling establishments. Besides these there are many mills (*moinhos*), stamps (*monjolos*), and small works (*engenhocas*).

2. Mechanical arts and trades. Besides those which exist in all civilised lands, such as the callings of mason, carpenter, joiner, iron-smith, tailor, bootmaker, etc., the following deserve especial mention:—

(a.) Printing and small bookbinding establishments at Ouro Preto, Marianna, S. João d'El Rei, Diamantina, Tres Pontas, Campanha, and places of minor importance.

(b.) Fabrics of cotton and wool in all parts of the province, especially in the municipalities of Queluz, Bom Fim, Pitangui, Desemboque, Piumhy, Tamanduá, and others in that part. Mostly they are coarse stuffs, but there are finer striped textures like casimir, also horse or saddle-cloths (*mantas*) and coverlets or bedcovers (*colchas*), strongly made and of good design. The annual total of stuffs may, without fear, be estimated at 4,000,000 yards (*varas*), and 10,000 pieces of bedcovers. The most important manufactory is that called "Canna do Reino," in the municipality of Conceição; it is aided by the government, and by the latest information it can turn out an annual total of 50,000 or 60,000 yards (*varas*).

(c.) Hats manufactured at S. Gonçalo da Campanha.

(d.) Ropes and a few stuffs manufactured with the fibres of the pita aloe, the Tuccum palm, the leaves of the Macaúba tree, etc.

(e.) Tanneries in the municipalities of Januaria, Paracatu, Uberaba, and others to the west.

(f.) Currieries and saddleries of the Cachoeira da Campo, Prados, Barbacena, S. João d'El Rei, and other places; fabric of packsaddles (*cangalhas*) and ordinary horse furniture in all parts.

(g.) Goldsmitheries of Diamantina, formerly much famed and still distinguished by their purity of metal.

(h.) Forges and furnaces, lime-kilns and potteries, mentioned under the head of "mineralogy."

(i.) Images made at Santa Luzia, where figures are prettily cut in a very white steatite sent from Bahia; the city annually exports a value of 60,000 \$ 000 (£6,000).

(k.) Pots and vases of steatite.

(l.) Potteries in the municipalities of Conceição, Caethé, and Marianna, all unimportant. The ancient works of "Saramenha,"

\* The vara is a yard of 5 palms = 40 inches.

a place near Ouro Preto, which produced an excellent article, have been abandoned for years.

(*m.*) Soap, indigo, wax tapers, tallow candles, almost exclusively consumed at home.

(*n.*) Gunpowder made at Ouro Preto and S. Bartholomeu: rockets and fireworks everywhere.

(*o.*) Drugs for apothecaries' shops, of which there are in the province some two hundred and fifty.

(*p.*) Wooden boxes and bowls, mats, baskets, panniers (*jacás*).

#### DISCUSSION.

Mr. CHARLES HAMILTON had listened to Captain Burton's valuable paper with great interest, and was very pleased to learn from it that the Captain did not hold out any hopes to the English agricultural labourers of obtaining any success in Brazil, as in his (Mr. Hamilton's) opinion it is about the worst country the English agriculturist could settle in.

Dr. CARTER BLAKE, referring to the description of human remains from a bone cave in Brazil (Journal of the Anthropological Society of London, vol. ii, p. cclxxv.), stated, in reply to Mr. Charlesworth, that he did not consider the attrition of the incisor teeth indicated a race character in the Brazilian aborigines.

The President announced that the auditors of the accounts of the Institute for 1872 had been appointed, viz., Mr. Clements R. Markham, C.B., on behalf of the Council, and Mr. Richard B. Martin, on behalf of the Members.

On the invitation of the President, Mr. Charles Hamilton made a brief statement relative to his proposed journey of exploration in Palestine.

The meeting then adjourned.

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### ANNIVERSARY MEETING.

JANUARY 21ST, 1873.

SIR JOHN LUBBOCK, Bart., F.R.S., *President, in the Chair.*

THE minutes of the last annual meeting were read and confirmed.

The Treasurer's Financial Statement of Income and Expenditure was read and adopted. (p. 424).



## ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

## Statement of Income and Expenditure for the year 1872.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
Balance, January 1st, 1873	... 234 3 4	By payments on account of debts at formation of Institute:	
Payments on account of arrears of Subscriptions:		Anthropological Society	... 250 0 0
Anthropological Society	... 23 2 0	Ethnological Society	... 150 0 0
Ethnological Society	... 4 4 0		400 0 0
Anthropological Institute	... 57 15 0	By cost of Publications	... 164 9 3
	85 1 0	By Museum	... 11 8 0
Subscriptions for the current year	... 742 3 0	By Salaries and Commissions	... 202 8 11
Life Compositions	... 106 1 0	By Rent	... 102 10 0
Donations by compounders to Ethnological Society	... 19 9 0	By Advertising	... 45 9 0
	125 10 0	By Stationery	... 17 4 4
Sale of Publications	... 51 8 0	By Postage and Sundry Expenses	... 64 0 0
		By House Charges	... 77 8 6
		By Balance	... 153 7 4
	£1238 5 4		£1238 5 4

We have examined the above account and find it correct.

 CLEMENTS R. MARKHAM, }  
 RICHARD B. MARTIN, } Auditors.

The President appointed as Scrutineers of the Ballot, Mr. McKenny Hughes and Major S. R. I. Owen, and declared the ballot to be then open.

The Report of Council for 1872 was then read by the Director, as follows :

SECOND ANNUAL REPORT *of the COUNCIL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND, for 1872.*

1. Your Council report with satisfaction that during the year 1872 thirty-one valuable papers have been read before the Institute, as shown by the following list :—

1. The Adamites. By C. Staniland Wake, Esq.
2. Hereditary Transmission of Endowments. By George Harris, Esq., F.S.A.
3. On the Wallons. By Dr. Charnock and Dr. Blake.
4. Strictures on Darwinism. Part I. Fertility and Sterility. By H. H. Howorth, Esq.
5. Anthropological Collections from the Holy Land. Captain Burton and Dr. Blake.
6. Race Characteristics as related to Civilisation. By J. G. Avery, Esq.
7. On the Comparative Longevity of Man and Animals. By George Harris, Esq., F.S.A.
8. On the Physical Conditions of Centenarians. By Sir Duncan Gibb, Bart., M.D.
9. Notes upon the Hair, and some other Peculiarities of Oceanic Races. By Dr. Barnard Davis, F.R.S.
10. Notes on the Hair of a Hindustanee. By Dr. H. Blanc.
11. Notes on the Peculiarities of the Australian Cranium. By S. M. Bradley, Esq.
12. Notes upon a Scaphoid Skull. By Professor Calori and Dr. Barnard Davis.
13. Mann : its Names and their Origin. By J. M. Jeffcott, Esq.
14. Vocabulary of the Aboriginal Dialects of Queensland. By Mrs. H. Barlow.
15. On the Mode of Preparing the Dead among the Natives of Queensland. By A. McDonald, Esq.
16. On the Moral Irresponsibility resulting from Insanity. By George Harris, Esq., F.S.A.
17. On the Artificial Enlargement of the Ear-lobes in the East. By J. Park Harrison, Esq.
18. On Tumuli at Sapolia, Russia. By Baron de Bogushefsky.
19. On the Ogham Pillar Stones in Ireland. By Hodder M. Westropp, Esq.
20. The Hill Tribes of North Aracan. By R. F. St. Andrew St. John, Esq.
21. The Ainos of Yezo. By Commander H. C. St. John.
22. Indian Picture Writing in British Guiana. By C. B. Brown, Esq.
23. Australian Languages and Traditions. By Rev. W. Ridley, M.A.
24. Man and Ape. By C. Staniland Wake, Esq.
25. The Moabite Jars; with a Translation. By the Rev. Dunbar J. Heath, M.A.
26. On Human Remains from Iceland. By Captain Burton and Dr. Blake.
27. Report of Anthropology at the Meeting of the British Association. By Colonel Lane Fox.
28. On some Implements bearing Marks referable to Ownership, Tallies, and Gambling, from the Caves of Dordogne, France. By Professor T. Rupert Jones.

29. *Discovery of a Flint Implement Station in Wishmoor Bottom, near Sandhurst.* By Lieut. C. Cooper King, B.M.A.

30. *The Origin of Serpent-Worship.* By C. Staniland Wake, Esq.

31. *The Gáro Hill Tribes.* By Major Godwin-Austen.

2. In addition to these the Council have accepted for reading at the meetings in 1873 twenty papers, and four more are under consideration by the referees.

3. These statements indicate great scientific activity on the part of members of the Institute.

4. Your Council regret to announce the loss to the Society by death of the following twelve members:—Mr. Edward Arnold, Mr. J. W. Breeks, Mr. Henry Charlton, Sir Walter Clavering, Mr. C. H. Gardner, Mr. Peter Gardner, Mr. J. W. Jackson, Mr. R. H. Kirwan, Mr. John Mortimer, Dr. E. Riccard, Professor Scouler, Sir A. Smith.

5. Thirty-three members have retired, and twenty-two new members have been elected.

6. Mr. Letourneau, Conseiller d'Etat, Algiers, and Dr. J. Haast, of Canterbury, New Zealand, have been elected corresponding members.

7. Mr. H. H. Howorth has been appointed Local Secretary for South Lancashire, and the Rev. T. F. Falkner for Colombo.

8. The financial condition of the Institute has shown marked improvement during the year:—

9. A sum of £410 has been paid during the year off the old debts of the Anthropological and Ethnological Societies, leaving £437 13s. 5d. still due, to which must be added £20 for interest charged by Mr. Richards, as follows:—

To Richards on account of Anthropological Society (including interest) ... ..	£395 8 10
To Taylor and Francis on account of Ethnological Society ... ..	52 4 7
	<hr/>
	£447 13 5

10. The other debts owing by the Institute on December 31st, were:—

To Richards for printing Journal ... ..	£328 12 6
To Kell Brothers, for illustrations to Journal ... ..	46 8 0
To Royal Society of Literature, for Rent ... ..	137 10 0
For Salaries due December 31st, but paid in 1873 ... ..	40 0 0
	<hr/>
	£552 10 6

11. Against this the following assets are available:—

Cash at Bankers	...	...	...	£153	7	4
Balance due from Longmans, for sale of Publications...				20	6	3
" Trübner	"	"	"	45	5	7
" Sotheby (for sale of surplus books)...				18	12	0
				£237	11	2

12. The net indebtedness of the Institute is there- fore	...	...	...	£314	19	4
And that of the two absorbed Societies	...	...	...	447	13	5
				762	12	9
Making a total of	...	...	...			
Which, as compared with the net indebtedness of 31st December, 1871	...	...	...	1012	2	3
				£249	9	6
Shows a saving in the year 1872 of	...	...	...			

14. It is satisfactory to your Council that they have been able to effect this saving without diminishing the value and interest of the Society's publications, upon which the following sums have been spent during the year:—

For Printing	...	...	...	£229	12	6
For Illustrations	...	...	...	111	3	3
				£340	15	9

15. Three numbers of the Journal (one a double number) have been issued during the year, containing the papers read before the Institute, with numerous illustrations, and some miscellaneous anthropological information.

16. The *Library* of the Institute, consisting of the combined libraries of the two absorbed societies, was found to contain many duplicate copies, and some works not of an anthropological character. Some of these were returned to the donors where they desired it, and the remainder have been sold by auction, producing, as before stated, £18 12s. net.

17. The *Museum* has been enriched by a large number of very valuable gifts, far exceeding the accommodation the Institute has at command for their exhibition. It has also been improved by the articulation and suspension in wooden cases of the aboriginal Tasmanian skeleton, presented by Mr. Morton Allport, and the gorilla skeleton, presented by Mr. Tom Craston.

18. The following are the names of the donors to the library and museum during the year:—

Capt. E. F. Burton; M. E. T. Hamy; James Burns, Esq.; Archaeological  
FF2

Society of Ireland; M. H. Schaaffhausen; M. Em. Alglave; M. Louis Agassiz; Paris Anthropological Society; Orleans County Society; Col. Chas. Whitteless; Bengal Asiatic Society; Phisico-ökonomische Societat; Vienna Academy; Liverpool Archæological Society; Royal University of Christiania; J. W. Jackson; Rev. W. W. Newbould; M. L. A. de Quatrefages; Association for the Promotion of Social Science; Editor of Psychological Medicine; Editor of Nature; The Manx Society; Royal Society; Daniel Wilson, Esq.; Editor of Food Journal; Canadian Institute; Impériale Académie des Sciences de St. Petersburg; Royal Society of Literature; British Association for the Advancement of Science; Messrs. Street Brothers; Dr. Mantegazza; Imperial Commission of St. Petersburg; Royal Geographical Society; Dr. H. Beigel; American Academy of Arts and Sciences; Dr. J. W. Wyman; Eugene Morris, Esq.; Consul T. H. Hutchinson; Dr. J. Barnard Davis; Morton Allport, Esq.; T. S. Barrett, Esq.; Society of Antiquaries, London: Royal Asiatic Society of Great Britain and Ireland; Secretary of State for India; Messrs. Longman and Co.; Society of Antiquaries of Scotland; Professor A. Ecker; Royal United Service Institution; W. Winwood Reade, Esq.; Dr. C. C. Abbott; W. S. Dallas, Esq.; Royal Institution of Cornwall; W. Webster, Esq.; Dr. Paul Broca; Vienna Anthropological Society; Impériale Société des Naturalistes de Moscow; G. W. Rusden, Esq.; The Earl of Kimberley; H. M. Westropp, Esq.; John Evans, Esq.; Théodore Weckinakof; Literary and Philosophical Society of Liverpool; Dr. Paul Topinard; Dr. Thomas Stratton; London Library; Com. R. J. Morrison, R.N.; Philosophical Society of Glasgow; Lion Vanderkindere; Philip Phœbus, Esq.; W. Besant, Esq.; Isidor Copernicki; Leeds Philosophical Society; Governor Rawson, C.B.; Dr. Edward Jarvis; Dr. Pius Melia; Chas. Darwin, Esq.; Dr. W. D. Whitney; Dr. Paul Bataillard; Joseph Bonomi, Esq.; A. W. Franks, Esq.

19. Your Council were gratified to receive from that of the Royal Geographical Society an invitation to co-operate with them in their application to Government for a renewed expedition to explore the Arctic seas. The Council was satisfied that great advantage to anthropological science might be anticipated from such an exploration. It is to be regretted that the Government have not seen their way to comply with the request made to them, but your Council will not fail to use any opportunity that may arise for renewing the application.

20. Your Council have observed with satisfaction that a grant of money has been made, and a committee appointed (consisting mainly of prominent members of your Council), by the British Association for the Advancement of Science, to prepare and publish a set of anthropological instructions to travellers and explorers in uncivilised countries. Your Council have requested the Committee to report to them upon any means by which this Institute could properly and usefully co-operate with the Association in this important work—one which the Institute has had in view from its formation.

22. Your Council trust the members will consider that they have not been wanting in activity during the past year. It must be borne in mind, however, that the Institute cannot expect to attain its full measure of usefulness while it continues burdened with debt. That debt is fast diminishing, and when



a few years have elapsed may be expected to be wholly extinguished. That object achieved, the Institute has before it a career of prosperity and usefulness second to none even among the most ancient and most highly privileged of scientific societies.

On the motion of Professor Rolleston, seconded by Mr. Boyd Dawkins, the Report was adopted *nem. con.*

Mr. E. Charlesworth and Mr. Robert Des Ruffières made a few remarks.

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The PRESIDENT then delivered the following address:

GENTLEMEN.—The report which has just been read gives you a clear, though succinct, account of our position as a Society, and of the work we have done during the past year. We may, I think, fairly congratulate ourselves on the result. Our financial position is rapidly improving, and I am happy to say that we have a good prospect of interesting papers for the present session.

During the past year Mr. Evans has published his long looked for volume on "The Ancient Stone Implements, Weapons, and Ornaments of Great Britain"; an excellent work, well worthy of the high reputation of our distinguished Vice-President. The first chapter is introductory; the second deals with the modes of manufacture; he then describes successively the chipped or rough hewn celts, celts ground at the edge only, polished celts, picks, chisels, gouges, perforated axes, perforated and grooved hammers, grinding stones, whetstones, flakes, nuclei, scrapers, awls, knives, javelin and arrowheads, flaking tools, sling stones and balls, articles of bone, spindle-whorls, buttons, &c. The descriptions are clear and interesting, and are illustrated by two plates and nearly 500 woodcuts.

Mr. Evans sums up the present state of our knowledge of the Neolithic, or Polished Stone age, as follows (p. 423): "These results, I must acknowledge, are to my mind, by no means completely satisfactory. It is true that regarding the various forms of objects described from a technological, or even a collector's point of view, the series of stone antiquities found in Britain does not contrast unfavourably with that from any other country.

We have hatchets, adzes, chisels, borers, scrapers and tools of various kinds; and know both how they were made and how they were used; we have battle-axes, lances and arrows for war, or for the chase; we have various implements and utensils adapted for domestic use; we have the personal ornaments of our remote predecessors, and know something of their methods of sepulture, and of their funeral customs. Indeed, so far as external appliances are concerned, they are almost as fully represented as would be those of any existing savage nation by the researches of a painstaking traveller. And yet, when we attempt any chronological arrangement of the various forms, we find ourselves almost immediately at fault. From the number of objects found we may, indeed, safely infer that they represent the lapse of no inconsiderable interval of time, but how great we know not; nor, in most cases can we say, with any approach to certainty, whether a given object belongs to the commencement, middle, or close of the Polished Stone Period of Britain."

The last four chapters are devoted to the Palæolithic period. He first describes the evidence derived from caverns, on the general results of which he thinks we may safely rely. In the case of Kent's Hole, for instance, we find "the refuse of his food, in the shape of the bones of the animals whose flesh he consumed, or the shells of the edible molluscs with which his meals were varied. We have seen that in the black mould above the stalagmite, the implements of bronze and stone are associated with a fauna essentially the same as that of the present day. But the bulk of the mammals which are found above the stalagmite do not occur below it; and assuming, as we must do, that the earlier occupants of the cave subsisted on animal food, and were unable to eat the whole of the bones as well as the flesh, some portion of the bones below the stalagmite must be the refuse from their meals. Without insisting on the perfect contemporaneity of all the animal remains found together in the cave-earth, we may, therefore, safely affirm that we have here relics of man associated with a fauna from which the ordinary forms of ox, sheep, goat, pig, and dog are entirely absent, and of which the majority of forms are now either totally or locally extinct." (p. 464.)

As regards the physical geography of the country in Palæolithic times, Mr. Evans attaches much importance to the probable saturation of the strata, which saturation, as he points out, would be more readily effected at that time than it is now, because the present deep valleys tend to drain the neighbouring uplands. Since in Palæolithic times the valleys were comparatively shallow, he thinks that such strata as the chalk may have been always in a state of saturation to within a few feet of the surface. He points out, moreover, that were the chalk in a less porous condition, its absorbent powers would not be so great. Under such circumstances floods would necessarily be more frequent and more severe than at present. Moreover, "with a bare surface such as a newly elevated tract would expose" (p. 581), the eroding power of rain would be much greater than at present. In consequence also of the more rigorous climate, snow and ice would accumulate during the winter, thus producing violent spring floods. We may, therefore, he says, "readily suppose that in the course of no very great interval of time, geologically speaking, a river system for carrying off the waters falling from the heavens, analogous in character to those of the present day, but with shallower valleys, would be formed on the surface of the elevated tract." (p. 581.)

Measured in years, however, the changes which have taken place since the appearance of man in western Europe indicate an immense lapse of time. Mr. Evans, indeed, considers that the evidence of man's existence in Miocene times is "very far from satisfactory." (p. 426.) Yet the antiquity of man, measured in years, must be very great, and the changes in physical geography which have taken place since his appearance have been immense. To realise, says Mr. Evans, "these changes, almost transcends the powers of the imagination. Who, for instance, standing on the edge of the lofty cliff at Bournemouth, and gazing over the wide expanse of waters between the present shore and a line connecting the Needles on the one hand, and the Ballard Down Foreland on the other, can fully comprehend how immensely remote was the epoch when what is now that vast bay was high and dry land, and a long range of chalk downs, 600 feet above the sea, bounded the horizon on the south? And yet this must have been the sight

that met the eyes of those primeval men who frequented the banks of that ancient river, which buried their handiworks in gravels that now cap the cliffs, and of the course of which so strange but indubitable a memorial subsists in what has now become the Solent Sea." (p. 621.)

M. Belgrand, "Inspecteur Général des Ponts et Chaussées, Directeur des Eaux et des Egouts de la Ville de Paris," has published a very important work entitled "*Le Bassin Parisien aux âges anté-historiques*," illustrated by maps and by more than eighty plates, for the most part palæontological. M. Belgrand's official position has enabled him to study the physical conditions of the Seine and its affluents under very favourable conditions, and his work will no doubt be read with great satisfaction by those who are interested in the subject. Without denying that the present condition of the country is due in great measure to the slow operation of existing causes, M. Belgrand is of opinion that the creation of the valleys, in the first instance, is due to cataclysmic action, which he places at the close of the Pliocene period. "Je partage," he says, "l'opinion de M. Elie de Beaumont; je crois que le soulèvement des Alpes s'est fait rapidement, et que c'est à ce grand cataclysme qu'il faut attribuer le déplacement d'eau qui a raviné le bassin de la Seine." (p. xxxix.) The direction of this current was from the south-east to the north-west, and he adds that, "il me paraît absolument impossible d'expliquer autrement les grands traits de cette orographie."

During Palæolithic times the continent was, he considers, less elevated than at present, and the rivers much larger. The diminution in the size of the rivers must, he thinks, have taken place very rapidly: "les grands cours d'eau de l'âge de pierre sont devenus tout à coup les petites rivières que nous voyons couler de nos jours." (p. 138.) This, in his opinion, is proved by the fact that the river valleys of the Seine and of Picardy are in their lower parts occupied by beds of peat. Now peat does not grow in turbid, muddy water. Thus there is no peat in the valley of the Marne, because owing to the impermeable nature of a part of its course, it is subject to violent floods of muddy water. The Seine valley contains much peat down to Montereau; here, however, it is joined by the Yonne, which

receives the waters from the impermeable district of the Morvan, and for some distance below this point, no peat occurs. The floods in Palæolithic times were so violent, that the water became muddy in all cases. Hence no peat was then formed. The growth of peat characterises the present régime. But if the change from the large rivers of Palæolithic times to the comparatively small streams of to-day had been gradual, M. Belgrand argues that the valleys would have been filled, not with peat, but with gravel sand and alluvium.

The magnitude of the floods in Palæolithic times as compared with those of to-day, may be accounted for without any such great geographical or meteorological changes as might at first be supposed necessary. M. Belgrand devotes a very interesting section to this subject. It is clear that areas drained by the rivers were not essentially different from the present. This is proved by the fact that the gravel and sand contain no foreign elements; they are always composed of materials derived, or which might have been derived, from the upper parts of the river course. The areas of drainage, therefore, were approximately the same as at present. In discussing this problem M. Belgrand calls particular attention to the fact that the greatest modern floods have not been accompanied by an excessive rainfall. Thus the greatest flood in the Seine during the nineteenth century was that of January 2nd, 1802. Speaking of this, Mr. Brasle, to whom we are indebted for our knowledge of the facts, remarks with surprise that there had been no snow, and that the rain had not been excessive. The explanation is that the floods of the various affluents are generally successive, but if on any occasion they become simultaneous, the result is much more serious than might have been expected from the rainfall. For instance, in the great flood of September 24th, 1866, "on a calculé que l'Armançon, à Aisy, ne débitait pas moins de 800 mètres cubes par seconde. On ne peut guère évaluer à moins de 500 mètres les débits séparés du Serein à Guillon, de la Cure à Saint-Père, de l'Yonne à Clamecy. Ces quatre rivières, dont les versants n'ont ensemble que 3,511 kilomètres carrés de superficie, débitaient donc ensemble environ 2,300 mètres cubes d'eau par seconde, tandis que la Seine, à



Paris, dont le bassin n'a pas moins de 43,270 mètres carrés, n'a débité, au maximum de la même crue, que 1,250 mètres cubes environ par seconde." (p. 120.)

The explanation is that the floods of these four rivers passed Paris successively, and before those of the more distant affluents. In the case of the Loire the floods of the upper affluents reach the lower parts of the river six or seven days after those of the nearer streams.

Under existing circumstances a vast amount of water percolates through the soil, and returning through the springs, mitigates the intensity of the floods while prolonging their duration. But, says M. Belgrand, agreeing on this point with Mr. Evans, "dans l'âge de la pierre, les pluies étaient tellement abondantes, que leurs eaux ruisselaient à la surface des terrains les plus perméables. Il résultait de là que la première partie de la crue de Paris, celle qui est due aux terrains imperméables, était considérablement augmentée, et que la deuxième partie, due aux eaux de sources, était aussi beaucoup plus grande, puisque, les eaux ruisselant à la surface du sol, les sources étaient alimentées, autant qu'elles pouvaient l'être, l'absorption des eaux pluviales dans les terrains perméables étant alors au maximum" (p. 122). In pp. 134-5, M. Belgrand gives some interesting diagrams, clearly showing that the floods of rivers which drain impermeable areas are much shorter and more violent than those which run on permeable strata. In the case of the Seine the impermeable strata occupy 19,390 square metres, the permeable no less than 59,210. When once, therefore, the latter were rendered impermeable, as he supposes to have been the case in Palaeolithic times, whether by saturation or any other cause, the total impermeable area, that which mainly supplies flood water, would be raised to 78,600 feet, that is to say, would be four times as large as at present.

M. Belgrand assumes that this would arise from the fact that the permeable strata would have been thoroughly saturated; perhaps it would rather depend on the circumstance that, owing to the greater severity of the climate, the soil would often be frozen. We must, however, by no means assume that we know the limits which floods can reach even under existing circum-

stances; the period during which they have been recorded is, of course, very short compared with that of the Palæolithic age, and as M. Belgrand points out, if during the floods of September 1866, the rain had persevered for only two days more, the floods of all the Seine affluents would have overlapped, and the passage of water would have been four times greater than any on record. While, however, I am disposed to admit from meteorological considerations that the rainfall during the glacial epoch was probably greater than at present, that floods were more frequent and severe, I do not think we have any direct proof that the rivers were on an average much larger than they are now.

As regards the antiquity of man, M. Belgrand considers that his existence in Miocene times is clearly demonstrated, relying on the lower jaw of a rhinoceros discovered by M. Laussedat in Auvergne. It was found in a bed belonging to the close of the Eocene, or beginning of the Miocene, and bears traces of incisions which, in his opinion, can only have been made by man.

As regards the number of flint implements found in certain spots; as for instance, by M. Boucher de Perthes in the valley of the Somme, and by Mr. John Frere (whom by a singular error he calls MM. John frères), at Hoxne, he points out that bones, etc., would naturally tend to accumulate at certain spots, where the bodies of drowned animals would be stranded; that they are scarce where valleys are straight, numerous where they are curved, especially on the convex side of the bends. As to the spots where flint implements are so abundant, he considers that these were manufactories, the savages frequenting certain places in the dry bed of the river, where they could find suitable flints in abundance.

In the "*Archiv für Anthropologie*" M. Schmidt has published a careful criticism on the cases in which human remains have been said to have been found in America, in association with the remains of the mammoth, mastodon, and other extinct mammalia. The greater number of these are, he considers, quite unsatisfactory. The human skeleton said to have been found in the rock on which the citadel of Quebec is built, and to be in the museum of that city, is a myth; no such skeleton exists, and the credulity with which this story has been received

by some writers is the more remarkable on account of the great geological antiquity of the rock in which the skeleton is said to have been discovered. The two cases recorded by Koch in which arrows, etc., were found in association with mastodon remains, are also quite untenable. As regards the New Orleans skull, said to have been found under four layers of cypress roots, at a depth of sixteen feet, and to which Dr. Dowler has attributed an antiquity of no less than 50,000 years; M. Schmidt comes to the conclusion that the case is not proven. He points out that in the original account given by Dr. Drake, this skull is not said to have been found directly under, but only near to, the cypress roots; and that even assuming the circumstances to have been accurately recorded, they do not involve so great an antiquity as that claimed by Dr. Dowler.

The Florida case, considered by Agassiz to indicate an antiquity of 10,000 years, he dismisses very briefly, since the discoverer, Count Pourtalès, has himself pointed out that Professor Agassiz was mistaken in supposing that the remains were discovered in an ancient coral reef. On the contrary, they were found in freshwater sandstone on the shore of Lake Monroe.

There are, however, five cases on record which, in M. Schmidt's opinion, go far to establish the antiquity of man in America, and his contemporaneity with the mastodon. The first of these is the skull found at Rock Bluff, on the Illinois river, northwest of Jacksonville, about 100 feet above the river bed. It does not materially differ from the existing type of the Dacotah Indians, though the muscular impressions are unusually marked, and the supraciliary ridges are very prominent, whereas they are generally but little developed in American skulls.

According to M. Meigs it was found in June 1866, in a fissure of the rock, which was "three feet wide, was filled with the drift material of this region, consisting of clay, sand, and broken stone, the whole being covered with a stratum of surface soil. In this bed, which had apparently been undisturbed since the deposit, was found the skull under consideration, at the depth of three feet."\*

The next case is that of the human bone found by Dr. Dicke-

\* Rep. of Reg. of Smith's Inst., 1867, p. 412.

son in the neighbourhood of Natchez. Sir C. Lyell considered that this bone might have been derived from an Indian grave. M. Schmidt, however, lays stress on the fact that in hardness, colour, and weight, the specimen in question resembles the remains of the megalonyx with which it was found, and differs from ordinary Indian bones. He sees no reason to doubt its great antiquity.

M. Schmidt attaches also much importance to the skull, said to have been obtained in 1866 by a Mr. Matson from a shaft sunk on a mining claim in Calaveras County, California. Mr. Matson states that it was found at a depth of about 130 feet in a bed of gravel, above which were four beds of consolidated volcanic ash, known locally as lava.

Mr. Whitney was at the time satisfied that the skull really came from the position assigned to it by Mr. Matson.\* Assuming this to be the case it would establish the presence of man in America prior to the cessation of volcanic activity in these regions, and contemporaneously with the mammoth and the mastodon. The thickness of the superjacent strata would also indicate a great antiquity, but there are grave doubts whether the skull is really ancient; Mr. Bret Harte, in "The Heathen Chinees, and other Poems," even asserts that it is really the skull of a negro miner named Bowers. I have been assured, on good authority, that Mr. Whitney himself has changed his opinion; on the other hand, the "*Revue d'Anthropologie*" (vol. i, p. 761) contains a letter, unfortunately without a date, in which he still maintains the antiquity of the skull in question.

The last case to which I shall refer is that of the shell implement found by Dr. Rijgersma in a bone breccia from the Island of Anguilla, and the discovery by Professor Holmes of human bones and pottery in a layer of dark clay, forming part of the bluff of the Ashley river, near Charleston, in association with remains of the mastodon, mammoth, etc., and on the whole he concludes that the contemporaneity of man in America with the mammoth and mastodon may be regarded as being satisfactorily established.

\* *Proc. Cal. Acad. Nat. Sci.* iii, 277, quoted in "*Sullivan's Journal*," 1867, p. 265.

Mr. Baldwin\* has published an introduction to North American Archaeology, under the title of "Ancient America, or Notes on American Archaeology." He does not, indeed, enter into the subjects treated by Dr. Schmidt in the memoir just referred to; but devotes himself principally to the mound builders, and the remarkable monuments of Mexico, Central America and Peru. Nor can I quit the subject of North American Archaeology without referring to Mr. Abbott's memoir on the stone age in New Jersey.† Mr. Abbott gives descriptions and figures of the principal varieties of stone implements found in his locality, and I can testify to the accuracy of both as he has been good enough to send me a large number of specimens illustrating the principal types.

Mr. Boyd Dawkins has contributed to the "Geological Journal" an interesting paper on the Classification of the Pleistocene Strata of Britain and the Continent by means of the Mammalia.‡ He divides the pleistocene deposits into three groups:—

"1. That in which the pleistocene immigrants had begun to disturb the pliocene mammalia, but had not yet supplanted the more southern animals. No arctic mammalia had as yet arrived. To this belongs the forest bed of Norfolk and Suffolk, and the deposit at St. Prest, near Chartres.

"2. That in which the characteristic pliocene cervidæ had disappeared. The even-toed ruminants are principally represented by the stag, the Irish elk, the roe, bison and urus. *Elephas meridionalis* and *rhinoceros etruscus* had retreated to the south. To this group belong the brick-earths of the lower valley of the Thames, the river deposit at Clacton, the cave of Baume, in the Jura, and a river deposit in Auvergne.

"3. The third division is that in which the true arctic mammalia were among the chief inhabitants of the region, and to it belong most of the ossiferous caves and river deposits in middle and northern Europe."

As regards the association of northern forms with such animals

\* "Ancient America, or Notes on American Archaeology."

† "The Stone Age in New Jersey," by C. C. Abbott. Reprinted from the "American Naturalist," v, vi.

‡ "Geol. Jour.," 1872, p. 410.



as, for instance, the hippopotamus, he rejects the view which Mr. Geikie and I have advanced, that the one group occupied the country during a cold and the other during a hot period: in other words, that the swinging to and fro of the animal life depended upon secular and not on seasonal changes: on the ground that "if this be true, we ought to find the animals in two distinct suites, corresponding to these changes of long duration."\* But though these changes may be called long in one sense, they are really very short when regarded from a geological point of view, and the river gravels with their contents were probably deposited and removed several times before they arrived at their present resting places.

Mr. Boyd Dawkins considers that during the pliocene period, the mammalia of Asia were prevented from spreading into Europe by a northern prolongation of the Caspian along the low lying valley of the river Obi. The pleistocene mammalia of Europe fall, in fact, into three groups; those which occupied our continent in pliocene times, those which immigrated into it from northern Asia, and those which spread north from Africa. Had not the animals which lived in Europe during the pliocene age been insulated by some physical barrier from the Asiatic forms, the latter would occur in our pliocene strata as well as the former, and the mammoth and mastodon would have been associated in Europe as they are in America. The animals of northern Asia, however, could not pass westwards until "the elevation of the sea bottom between the Caspian Sea and the southern portion of the Urals." Until this time the lemming, musk-sheep, mammoth, stag, reindeer, musk-shrew, brown and grizzly bears, roe, etc., had not formed part of the European fauna.

The same number of the "Geological Journal" contains an interesting paper by Colonel Lane Fox, on the discovery of palæolithic flint implements in association with *elephas primigenius* in the gravels of the Thames valley, near Acton; as well as an appendix by Mr. Busk on the animal remains.

Under the title of *Nænia Cornubiæ*, Mr. Borlase has collected together the scattered notices of the primitive sepulchral monuments of his native county, and has added the results of his

\* *Loc. cit.*, p. 431.

own researches. "Barrows and cairns," however, as he himself observes, "are by no means the most fruitful field for Cornish antiquities. Tin stream-works, and the sites of ancient mines and smelting-houses, have been always the most productive sources of objects of interest to the Cornish antiquary; and a paper of considerable length and no little interest might be written on the subject of the implements, weapons and ornaments of the ancient miners of the West"; and I hope, therefore, that Mr. Borlase may be induced himself to undertake the work which he has sketched out.

Dr. Gerland has brought out the sixth volume of Waitz's *Anthropology*, which deals with the Polynesians, Melanesians, Australians and Tasmanians, describing their physical condition, clothing, ornaments, food, canoes, customs, character, poetry, family life, laws, religion, etc. It is an interesting and most laborious work, and should be in the hands of all students of *Anthropology*.

These are but few of the works devoted to our science which have appeared during the past year. Indeed, the literature increases daily.

The various periodicals connected with our science contain an immense number of valuable memoirs, and we have to congratulate ourselves on the establishment in Paris of the "*Revue d'Anthropologie*", edited by Dr. Paul Broca. Under his able guidance the *Revue* cannot fail to be most valuable. Three numbers have appeared, all of which are full of interest. The first two contain, besides smaller communications, short reviews and a bibliography, a memoir by Dr. Broca himself, entitled "*Recherches sur l'indice nasal*"; "*Recherches sur les proportions du bras et de l'avant-bras aux différents âges de la vie*", by Dr. Hamy; a memoir on New Caledonian skulls, by Dr. Bestillon; "*L'Homme fossile de Denise*", by Dr. Sauvage; and an excellent memoir on the Mincopies by M. de Quatrefages, who is, I think, disposed to rank them too high, especially in regard to their family relations. He observes, for instance, that they have a person whose special duty it is to watch over the behaviour of the unmarried girls; quoting as his authority the following passage from Mr. Day, which, however, as it seems to me, he has misunderstood on this point. Mr. Day's words are:

"The marriage ceremony is simple; a man about sixteen or eighteen is engaged to a girl of thirteen or fifteen belonging to a different family, with the consent of the girl's guardian, who is generally the chief of the tribe. On the marriage-day they are seated apart from the others, and pass their time in staring at one another. As the shades of evening set in, the girl's guardian advances, and taking the hands of the pair joins them together; they then retire into the jungles, where they pass their honeymoon."<sup>\*</sup>

Here it seems evident that by the girl's guardian, Mr. Day did not mean any special functionary, as supposed by M. de Quatrefages, but merely her father, elder brother, or whoever was entitled to dispose of her in marriage.

The third number is also full of interest. I will only mention Dr. Broca's paper "*Sur la classification et la nomenclature craniologiques d'après les indices céphaliques.*" M. Broca adheres to his own classification, which is as follows:—

	Cephalic index.
Dolichocephalic . . .	75 and less.
Subdolichocephalic . . .	75·01 to 77·77.
Mesaticephalic . . .	77·78 to 80.
Subbrachycephalic . . .	80·01 to 83·33.
Brachycephalic . . .	83·33 and upwards.

and gives his reasons for preferring this system to those proposed by Huxley,<sup>†</sup> Thurnam,<sup>‡</sup> and Welcker.<sup>§</sup>

In my address last year, I called attention to the continued destruction of prehistoric remains, and mentioned that, in conjunction with other gentlemen who are interested in the subject, I was engaged in the preparation of a Bill for the better preservation of these national monuments. The Bill is now ready; it has been submitted to and approved by the Council of the Society of Antiquaries of England, the Society of Antiquaries of Scotland, and of the Royal Irish Academy for Ireland, as well as various other learned Societies, occupied with such subjects,

<sup>\*</sup> Day. *Proc. As. Soc. Bengal*, 1870, p. 160.

<sup>†</sup> "Prehistoric Remains of Caithness," 1866.

<sup>‡</sup> On the two principal forms of Ancient British and Gaulish Skulls, "*Mem. Anthropol. Soc.*" vol. i.

<sup>§</sup> "Kraniologische Mittheilungen," *Archiv für Anthropologie*, 1866.

and it will be introduced as soon as Parliament meets. As there seems to be a general wish throughout the country to take some adequate steps for the preservation of these ancient monuments and graves of our forefathers, I am not without hope that the Bill may meet with a favourable reception.

It only now remains for me, gentlemen, to resign the position which I have had the honour of holding for the last two years. I beg to thank the Institute for the honour which they have thus conferred upon me, and for the support I have on all occasions received from the members. I wish the Society a long, useful, and prosperous career.

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Dr. Beddoe moved, and Dr. Langdon Brown seconded, that the best thanks of the meeting be given to the President for his Address, and that it be printed in the Journal of the Institute.

The PRESIDENT returned thanks.

The Scrutineers of the ballot then brought up their Report, and declared that the Officers and Council to serve for 1873 were elected, viz. :

*President.*—Professor George Busk, F.R.S.

*Vice-Presidents.*—John Beddoe, Esq., M.D.; J. Barnard Davis, Esq., M.D., F.R.S.; John Evans, Esq., F.R.S.; Colonel A. Lane Fox, F.S.A.; Professor Huxley, F.R.S.; Sir John Lubbock, Bart., F.R.S.

*Director.*—E. W. Brabrook, Esq., F.S.A.

*Treasurer.*—J. W. Flower, Esq., F.G.S.

*Council.*—H. G. Bohn, Esq., F.R.G.S.; Captain R. F. Burton; A. Campbell, Esq., M.D.; Hyde Clarke, Esq.; W. Boyd Dawkins, Esq., F.R.S.; Professor P. M. Duncan, M.D., F.R.S.; Robert Dunn, Esq., F.R.C.S.; David Forbes, Esq., F.R.S.; A. W. Franks, Esq., M.A.; Francis Galton, Esq., F.R.S.; C. R. Markham, Esq., C.B.; Captain Sherard Osborn, C.B., R.N.; Captain Bedford Pim, R.N.; F. G. H. Price, Esq., F.G.S.; J. E. Price, Esq., F.S.A.; F. W. Rudler, Esq., F.G.S.; C. Robert Des Ruffières, Esq., F.R.S.L.; W. Spottiswoode, Esq., V.P.R.S.; E. Burnet Tylor, Esq., F.R.S.; A. R. Wallace, Esq., F.L.S.

Professor Huxley moved

“That the best thanks of the members of the Institute be voted to Sir John Lubbock, Bart., the President for two years, now retiring.”

Mr. David Forbes, F.R.S., seconded the motion, which was carried unanimously.

On the motion of the President, seconded by Mr. Hindmarsh, the thanks of the meeting were voted to the retiring members of Council.

A vote of thanks was also passed to Mr. Brabrook for his services as Director.

Thanks were voted to the Auditors for their labours, and to the Scrutineers for their report of the ballot, and the proceedings terminated.





## ANTHROPOLOGICAL MISCELLANEA.

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*The Expression of the Emotions in Man and Animals.* By CHARLES DARWIN, M.A., F.R.S., etc. With Photographic and other Illustrations. London: Murray, 1872.

A WORK from the pen of Mr. Darwin on any subject connected with natural history, will always command attention, however it may fail to make a convert of the reader to the peculiar theory which the author advocates in regard to the descent of our race from the animal kingdom. Independent, however, of the truth of the theory in question, there is sufficient of real value and of intense interest in every production which emanates from Mr. Darwin, to ensure its being acceptable to every intelligent mind, whether naturalist, anthropologist, or only a searcher after general knowledge.

The book before us may be viewed in three distinct lights: 1. As an argument in continuation of that contained in Mr. Darwin's other works, in support of what is now generally known as the Darwinian theory. 2. As a treatise on certain points in natural history. 3. As an exposition of a very important branch of art.

The main argument which the author endeavours to adduce from the facts which he has collected together in the present volume is, that as man is wont to manifest so many exhibitions of emotions and passions in various ways, closely resembling those exerted by animals on corresponding occasions and from corresponding causes, it may reasonably be inferred that animals have not only much in common, but that man must almost necessarily be descended from some member of the animal kingdom.

We prefer, however, giving a summary of the writer's argument in his own words; when he states that "the study of the theory of expression confirms, to a certain limited extent, the conclusion that man is derived from some lower animal form, and supports the belief of the specific or subspecific unity of the several races," p. 367.

Illustrations in support of his theory are afforded in different parts of his work. Thus, in the case of fear, he observes "With regard to the involuntary bristling of the hair, we have good reason to believe that in the case of animals this action, however it may have originated, serves, together with certain voluntary movements, to make them appear terrible to their enemies; and as the same involuntary and voluntary actions are performed by animals nearly related to man, we are led to believe that man has retained, through inheritance, a relic of them, now become useless," p. 308. So also as regards the

means of intercourse, both between men and animals, we are told that "the power of communication between the members of the same tribe by means of language, has been of paramount importance in the development of man; and the force of language is much aided by the expressive movements of the face and body. We perceive this at once when we converse on an important subject with any person whose face is concealed," p. 355. The expression of rage in the case of man, is thus traced to its exhibition in the animal creation: "Our early [animal] progenitors when enraged would probably have exposed their teeth more freely than does man, even when giving full vent to his rage, as with the insane. We may also feel almost certain that they would have protruded their lips when sulky or disappointed in a greater degree than is the case with our own children, or even with the children of existing savage races," p. 363.

Lavater, in his "Physiognomy," traced out the similarity as regards the type of form in each, between the faces of certain men and certain animals, which he illustrated by plates; and further contended that those men who are adorned with countenances which resemble particular animals, partake largely of the nature of those animals; thus contributing to establish the affinity between the nature of man and that of animals in some respects, perhaps even further than Mr. Darwin has done; if, indeed, Lavater did not thus, to a certain extent, supply the missing link which has been so frequently said to be wanting in order to connect the two species together.

White, too, in his "Gradation of Man and Animals," established the general and gradual gradation both in men and animals, and between the different species of each. He tells us that "the hint that suggested this investigation was taken from Mr. John Hunter, who had a number of skulls which he placed upon a table in a regular series, first showing the human skull, with its varieties in the European, the Asiatic, the American, and the African; then proceeding to the skull of the monkey, and so on to that of a dog, in order to demonstrate the gradation both in the skulls and in the upper and lower jaws," p. 41.

We have thus endeavoured, as fairly as we could, allowing for the narrow limits to which our space extends, and as favourably to Mr. Darwin as it appeared that we were warranted in doing, to present before our readers what seemed to us to be the leading points in support of his theory; as regards which, although supported with all the ingenuity, all the eloquence, and all the information which Mr. Darwin has so abundantly at command, most of his readers will, we believe, conclude that, although like our friend "the claimant," he may be said, to a certain extent, to have made out a very fair case, yet there are certain essential links to be supplied, and certain facts to be got over, without which it is impossible to carry conviction.

Viewed merely as a treatise on natural history, we believe that it will be difficult to over estimate the value of the work before us. It treats, indeed, not only on natural history, but upon that branch of it

which is at once the highest, the most difficult, and the most important. Not merely the physical structure, but the instinctive endowments and impulses of the animal race are here investigated, and the penetration and discrimination of the author have effected valuable service in bringing much to light, which was previously in obscurity. To a certain extent, perhaps, we may regret that his work has been *tethered*, if we may use the expression, by his particular theory, and by his desire to make every fact contribute to the support of that theory, instead of discussing the subject of natural history free from prejudice, and with a desire only to arrive at the simple truth. He, in fact, appears as an advocate, when he should have assumed the judicial character. Be this as it may, the work is of essential value as a contribution to natural history, and is highly serviceable to the study of anthropology also.

Considering Mr. Darwin's book as an exposition of a very important branch of art, the expression of the emotions, we are inclined to attach to it very high value. This department of the arts is, moreover, one which is not only of great consequence, but it is one which has been much neglected by our artists, and which we trust that Mr. Darwin's work may essentially contribute to remedy. The ancients understood these matters better than we do; in proof of which we may appeal to the Greek statues of animals in the Vatican, as also to the paintings by Rubens, Sneyders, and Rembrandt, in which animal passion is very forcibly depicted. Indeed, a member of the Anthropological Institute, Mr. G. Harris, some time ago, in his "Theory of the Arts,"\* devoted some pages to the consideration of this very subject, and urged its importance as connected with the study of art, pointing out how, from the expression both of emotion and passion exhibited by animals, much may be learnt, alike as regards truth and force in exhibiting that of man. The ancient poets, too, more especially Homer and Virgil, in their descriptions of violent passion and emotion in man, were wont to institute comparisons with animals when similarly excited.

Mr. Darwin's work is enriched with photographic and other illustrations throughout, which make it at once fully intelligible to the general reader, and highly serviceable to artists. On the whole, however we may differ from the author on many points, we feel bound to pronounce his book as one of sterling value, as well as of deep interest, and without which the library of no man of scientific acquirements, or of profundity as a naturalist, can be considered to be complete.

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#### THE HAMATH INSCRIPTIONS.

SIR,—Mr. Hyde Clarke's speculations as to the origin and analogies of the Hamath character o/o are ingenious, but I much fear that they will lead to little practical result. This would, in my opinion, be better attained by seeking for a modern key to the Hamath inscriptions, than even by comparing them with the ancient cuneiform or

\* Vol. ii, pp. 74, 80

hieroglyphic characters. I shall, indeed, be surprised to find that those inscriptions have any such antiquity as Mr. Hyde Clarke ascribes to them, seeing that the o/o on which he lays so much stress, and several other of the Hamath forms are yet used by a North African race. At least such I judge to be the case from the description of the Tuarick written character, given in the introduction to "Denham and Clapperton's Travels in Northern and Central Africa." Of the eighteen signs there given, it appears to me that at least half may be traced in the Hamath inscriptions, among them being o/o (Yigh). It is noticeable that "on almost every stone in places they [the Tuaricks] frequent, the Tuarick characters are hewn out. It matters nothing whether the letters are written from the right to the left, or *vice versa*, or written horizontally." This description answers almost exactly to that of the characters in the Hamath inscriptions, in which, moreover, there appears to be much difference, in the actual formation of the figures employed.

Yours obediently,

C. STANILAND WAKE.

To the Editor of the Journal of the Anthropological Institute.

#### A COLONY OF HEATHENS.

SIR,—In spending large sums of money every year in sending missionaries to foreign countries for the conversion of the heathen abroad, we are very apt to forget our own heathen at home. A reiteration of the statement that there are heathens in London would fail to excite any surprise. But when I assert that within twenty-four hours' ride of the "Great City," there are heathens proper—that is, *bonâ fide idol worshippers*—it may startle not a few of the pious people who keep on good terms with their conscience by annually sending their mites to some missionary fund for the conversion of the Chickaboo Islanders. I must confess that it is by no means comfortable, after boasting for generations to all the world of our civilisation and Christianity, to suddenly discover that in our very midst is a race of barbarians, who, lacking the knowledge of the true God, fall down and worship a wooden image. But however startling it may be, I assert that it is positively true.

Off the West Coast of Ireland, in lat. 54° 8' N., and long. 10° 12' W., are two islands known as Inishkea, north and south. The word is Irish, and signifies "Inish," an island, "Kea," a thorn bush. So that the name suggests that at some remote period thorn-bushes were found there, though I observed, during my recent visit, that the thorn-bush was conspicuous by its absence. With the exception of one hill called Knocknaskea, the islands are perfectly flat. The islanders are ruled by "a king," who is said to be upwards of a hundred years of age. While having my doubts on this point, I am bound to say that his majesty is particularly hoary, and has certainly passed the allotted three-score years and ten. He is a most agreeable monarch, and is much beloved by his subjects. He has no suite, or palatial residence, and his revenue consists of a small per-centage of

the fish caught and the potatoes grown. The habitations are mere hollow heaps of stone, plastered over with mud, and thatched with rushes and seaweed. In some of these wretched hovels as many as eight and ten persons herd together, with a goat or pig, and in many cases a cow sharing the accommodation with them.

But this description would not inaptly apply to many other parts of Ireland, and even in some of our agricultural districts the labourers are not much better off in the matter of housing. But here is something that will not apply, it is to be hoped, to any other part of her Majesty's dominions.

The religion of these islanders is confined to the worship of a large wooden idol. This is no exaggerated figure of the Virgin Mary, but a rudely carved image of a man, about eight feet high, dressed in a long flannel gown. I could not ascertain that they have any particular home for the god, and there seemed to be a general desire on the part of the natives to preserve a strict silence with respect to his saintship. It was only after repeated solicitation that I was permitted to visit the place where the idol is kept—a hut, somewhat larger than the surrounding ones, and which is used by the natives as a place of worship. Owing to the situation of the islands they are exposed to the full force of the Atlantic gales, and at such times the inhabitants are unable to pursue their avocation of fishing, and in consequence suffer great privations. The idol is then, amid many lamentations, brought down to the shore, and invoked to still the storm, the natives at the same time prostrating themselves on the sand. Should the gale cease, it is attributed, of course, to the interference of the idol; but if, on the other hand, no abatement takes place, it is the god's will, and so he is sorrowfully but reverently carried back to his domicile.

These poor people hold very little communication with the outer world, and they have a tradition that they are the descendants of a mighty giant, who with his wife came from a beautiful and fertile island of great extent, which was submerged by the Atlantic. They say that this island was a perfect Paradise; that gorgeous plumaged birds flitted about and made the air melodious with exquisite music, while flowers of the most brilliant hues bloomed perennially. They believe that the enchanted island will some day rise again in all its loveliness, and become the future home of the spirits of their departed friends.

The seals, which abound on the rocky parts of the shore, are regarded with profound veneration, and on no account could a native be induced to kill one, as they are said to be the souls of their departed friends. In the hut of the king is the skin of a large white seal, which I ascertained was piously treasured on account of having formerly been occupied by the soul of a maiden. The following is the legend related to me. Many years ago a beautiful young girl lived upon the island, and was the betrothed of a "dacent boy" by the name of Rooney. One day Rooney and his bride-elect were out fishing in a coracle, when a storm arose and the frail craft was cap-



sized. The terrified lover endeavoured to save his sweetheart in vain. Before sinking for the last time she bade him farewell, and said she should become a white seal and would sing to him. The broken-hearted Rooney swam ashore, but his reason had fled. For a long time he daily made a pilgrimage round the island in the hope of meeting his departed in the shape of a white seal; but his journeys were always fruitless. At length, one stormy winter night, when the wind howled across the island with terrific fury, Rooney started from his couch of rushes, and exclaimed, "Hark, I hear her singing—she calls me now," and before anyone could stop him, he had bounded off and was lost in the darkness. His friends were about to follow, when they were deterred by a plaintive voice, which in a low musical tone bade them stay. All night long they heard the voice chanting a melancholy lay, but when daylight broke it ceased. Then a search was made, and down on the sea-shore they found the dead body of Rooney with a dead white seal clasped to his breast. The souls of Rooney and his beloved had gone to the enchanted island.

In answer to inquiries I made with respect to the burial of their dead, I was informed that for three days the corpse is allowed to lie with its face exposed, and a light burning at its head. And during this time the wooden god is repeatedly supplicated to give the deceased a safe passage to the Paradisiacal island. At the end of the third day, the friends and relatives assemble at the hut, a procession is formed, and amid much wœeping and wailing the remains are carried to the graveyard and there buried, stones from the seashore being piled in heaps to mark the spot.

Some two or three years ago, I believe a missionary went over to Inishkea to attempt the conversion of the heathens; but, like many of his class who have gone on similar errands to other parts of the world, he commenced his work by scoffing at and reviling the god they worshipped, forgetting that for generations the faith of these poor people had been placed in that senseless image; and that faith, when once placed, is too strong to be scoffed away. By adopting this course he very naturally failed in his object, and so incensed the natives that he narrowly escaped with his life. Since then nobody seems to have thought it worth while to attempt the conversion of these untutored islanders.

J. E. M.

From the "Echo," Nov. 23, 1872.

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#### ARTIFICIALLY ENLARGED EAR-LOBES.

THE following supplemental matter has to be added to the paper on "Enlarged Ear-lobes," in the *Journal*, p. 198.

Among the Cypriote statues recently exhibited in London, two or three of archaic character were found to have plugs of considerable size inserted in the lobes of the ear.

Also, in the copies of the frescoes at Ajunta, now in the India Office, numerous figures are represented with enlarged ear-lobes—

some with rings inserted in them, others with pendant lobes without distending ornaments; their complexions vary in colour, from a bright brown to black. One of the principal personages has a string of large pearls, with four tags of pearls of a smaller size attached to them, pendant from the enlarged lobe of the right ear. In the left there is a ring of a blue colour, with square edges coloured white. The ring is inserted in the ear-lobe, and appears to be at least three inches in diameter; the colour of the skin of this figure is brown. Another principal personage (a rana or princess?) is also represented with enlarged ear-lobes, filled with large blue rings with white edges; her skin is a bright black. In Dr. Forbes Watson's portraits of existing races in India, the Coles, who inhabit the part of India in which Ajunta is situated, are represented with discs or plugs in their ears of a considerable size.

In the paper upon enlarged ear-lobes, above alluded to, it was stated that the custom did not appear to extend in the New World further north than México. In "Moore's Voyages," however, a plate has since been met with, in which the natives of the coast of California are represented with long slits in their ears.

Large discs or plugs are still used by the following people:—

The original race in the Island of Formosa. (Mr. Franks).

The natives of the Island of Car Nicobar, on the east side of the Bay of Bengal. (Mr. Distant).

Some tribes on the Upper Amazon. (M. Markoy\*).

The natives of the Mulgrave group. (La Perousse).

The islanders of Santa Cruz. (Chorist†).

J. PARK HARRISON.

\* "A Journey across South America."

† "Voyage pittoresque," by Louis Choris.

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